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JOURNAL OF THE AMERICAN PHARMACEUTICAL ASSOCIATION

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THE SEVENTY-FIRST ANNUAL CONVENTION OF THE AMERICAN PHARMACEUTICAL ASSOCIATION WILL BE HELD IN ASHEVILLE, N. C.

The 1923 meetings of the American Conference of Pharmaceutical Faculties and the National Association of Boards of Pharmacy will also be held in Asheville.

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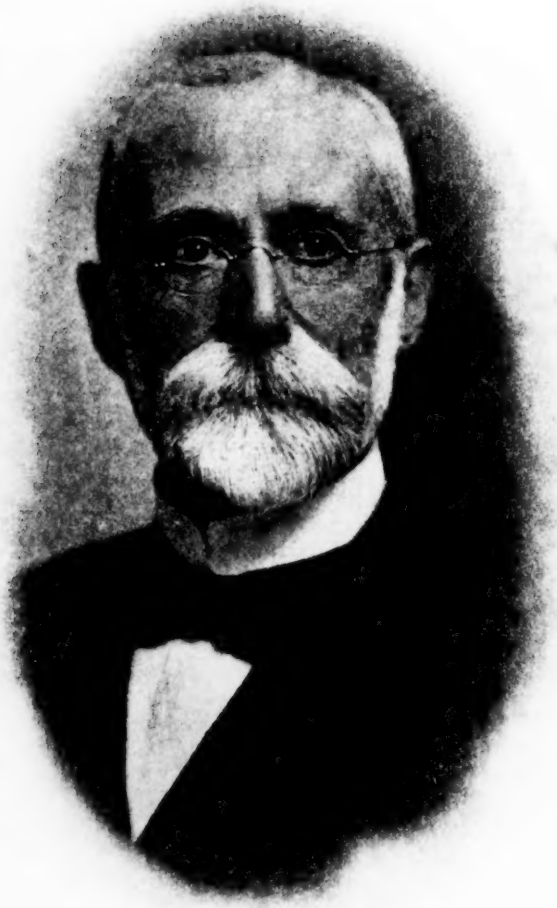
SAMUEL A. D. SHEPPARD*

(1842–1915)

BOSTON, MASS.

Treasurer of the American Pharmaceutical Association, 1886-1908
Honorary President A. Ph. A., 1908

*The condition of Mr. Sheppard's health did not permit his attendance at the annual meetings of the American Pharmaceutical Association during the later years of his life. The appreciation herewith offers an opportunity for placing on record a memoir by one who worked with Mr. Sheppard for quite a number of years, and who, with him, established the A. Ph. A. Endowment Fund.—EDITOR.



S. A. D. SHEPPARD.

JOURNAL OF THE AMERICAN PHARMACEUTICAL ASSOCIATION

VOL. XI SEPTEMBER, 1922 No. 9

SAMUEL A. D. SHEPPARD—AN APPRECIATION.*

BY J. H. BEAL.

Samuel Arius Darlington Sheppard was born in 1842, at Manchester, Mass. When eight years old his family removed to Salem, Mass., where he finished his English education, graduating from the Salem High School in 1858, when sixteen years of age. Immediately following his graduation from high school he entered the pharmacy of Browne & Price, of Salem, reputed to be one of the best conducted pharmacies in New England, where he received a thorough pharmaceutical training and where he remained for ten years.

In 1868, when 26 years of age, he entered business upon his own account, purchasing a store at the corner of Washington and Dover Streets, Boston, with the financial assistance of one of his former employers.

Although described as an old and run-down store, it soon acquired a wide reputation under Mr. Sheppard's energetic and capable management and became one of the best known pharmacies in Boston.

At this one location Mr. Sheppard remained during his entire business career, of more than 40 years.

When Mr. Sheppard purchased the store it was in a residential district, but in later years became one of the most thronged of down town business sections. Notwithstanding this change in its business surroundings, the store successfully retained its original character of a real pharmaceutical establishment, and never degenerated into a mere novelty shop or popular emporium.

Mr. Sheppard's even temper and pleasant personality can be inferred from the long terms of service with him of various employees. At the time of relinquishing active management of the store, one of his men, Mr. Henry Thacher, had been with him continuously for over 30 years, and others for terms ranging, respectively, from 12 to 26 years.

Notwithstanding the time and energy required for the building up and maintenance of a large successful drug business, Mr. Sheppard found time to devote to many collateral activities.

The Massachusetts College of Pharmacy early became a favorite object of his regard. He became a member of the college corporation in 1868, the year of

*A contribution to the Section on Historical Pharmacy, A. Ph. A., August 16, 1922.

beginning his business career in Boston, and from the first day of his connection with the institution was assiduous in promoting its welfare. He was elected a trustee of the College in 1870, and from that time forward almost continuously filled some official position during his business life.

It is significant of Mr. Sheppard's modest estimate of himself that though deemed by his colleagues competent to serve as a trustee of the institution, he nevertheless the same year matriculated as a student of the College, graduating therefrom in 1874.

It was largely through the stimulus of his activities that steps were taken in 1885 to secure a suitable college building and equipment. In addition to contributing liberally from his own purse he was active in securing subscriptions, and in interesting persons outside of the retail drug trade in the success of the institution. It was very largely due to Mr. Sheppard's efforts with men of wealth and position that they were induced to contribute to the College. One of the first results was the "Warren B. Potter Memorial Fund" of $200,000, which since then has been followed by other contributions for equipment and endowment until the Massachusetts College of Pharmacy has become probably the wealthiest corporation of its kind in the world.

Mr. Sheppard early recognized the importance of associations for the development of pharmacy.

He was an active member of the Alumni Association of the Massachusetts College of Pharmacy from the time of his graduation, was a charter member of the Boston Druggists' Association, and also a charter member of the Massachusetts State Pharmaceutical Association, his activity in the work of creating the latter organization being indicated by the fact that he was elected its first President, in 1882. He was largely responsible for the enactment of the Massachusetts Pharmacy Law, and when the Massachusetts Board of Registration in Pharmacy was created the Governor appointed him a member for the first full term of five years.

Mr. Sheppard became a member of the American Pharmaceutical Association in 1865, while still a drug clerk at Salem. He was local secretary at the Boston meeting in 1875, and at the Philadelphia meeting in 1876 was elected First Vice-President of the Association.

He took an important part in the changes which resulted in the creation of the Council in 1880, was a member of the first Council elected, and served as Chairman of the Committee on Finance until 1886. In the latter year he was elected Treasurer of the Association, and gave unstintedly of his time and energy to the duties of that office for a period of 22 years.

Accompanied by Mrs. Sheppard, he was a regular attendant of the annual meetings as long as his health permitted, was invariably present at all of the sessions, and conscientiously devoted himself to the work of the Council and other committees of which he was a member.

He was called upon to assist in the reorganization of the business methods of the U. S. P. Convention, at the time of its incorporation under the laws of the United States in 1890, and was elected a member of the first Board of Trustees, which position he continued to fill until failing health compelled the relinquishment of active pursuits.

Mr. Sheppard's executive and solid business qualifications were such that he was frequently drafted for service in non-pharmaceutical lines.

In the town of Newton, a suburb of Boston, where he at one time resided, he served for some years as Alderman and as a member of the Board of Health. For many years he was a Trustee of the Boston Penny Savings Bank, one of the most substantial of New England's financial institutions, and was also a Director of the South End National Bank of Boston.

Early in his professional life Mr. Sheppard began the accumulation of a pharmaceutical library, paying particular attention to the collecting of the pharmacopoeias of all periods and countries. In this work he enlisted the services of

that eminent authority on pharmacopoeias, the late Dr. Charles Rice, which resulted in the accumulation of approximately 275 volumes properly entitled to be called pharmacopoeias, probably the most complete collection of works of this character in existence.

His entire collection of pharmacopoeias, botanical works, dispensatories and works on pharmaceutical chemistry and allied subjects, amounting to something like 2500 volumes, was by him donated in 1889 to the Massachusetts College of Pharmacy, where it was made the foundation of the "Sheppard Library" of that institution. With its later accumulations it has become noted for its content of rare and little known works relating to pharmacy, and is frequently made use of by students of special subjects who come there from other institutions to avail themselves of authorities not readily found elsewhere.

The above are but a few of Mr. Sheppard's many activities, and are cited here because, better than adjectives, they serve to illustrate his useful and busy life, his generous contributions to altruistic purposes, and his high ideals of service to pharmacy and to his fellowmen.

In 1908 the Philadelphia College of Pharmacy conferred upon him the honorary degree of Master of Pharmacy, and in 1915 the Massachusetts College of Pharmacy honored him with the degree of Doctor of Pharmacy, the second time in the history of that institution that it has conferred this distinction upon any one.

He was frequently besought by his friends in the American Pharmaceutical Association to permit himself to be made President of the Association but steadfastly declined, though in 1908, after his retirement from the treasurership, the Association as a small mark of its appreciation elected him as its Honorary President.

Mr. Sheppard had an abiding dislike for positions of conspicuity and whenever possible avoided them. He did not like to be the official head of any organization or body with which he might be connected.

He perhaps realized that the most effective work in any organization usually originates from the floor rather than from the chair. In whatever enterprise he engaged his abilities were quickly discovered by his colleagues and his vigorous personality was such that he was frequently the real leader, even when not officially recognized as such. He was a natural organizer and executive, and every institution or enterprise with which he was associated quickly showed in its organic framework and in its proceedings the effects of his vigorous mind and executive ability.

In the papers and reports presented to this and to other associations and in the debates in which he frequently took part he displayed a style that was devoid of rhetorical embellishment, but was simple, direct and convincing.

He was a puritan in his steadfast devotion to principle, but was entirely without the puritan's frequent bigotry and intolerance for the beliefs and opinions of others. His even temperament and broad tolerance for the opinions and rights of others enabled him to work harmoniously with many with whom he differed on particular points of policy. He felt that little was to be gained by the forcible thrusting of truths down the throats of people who were not ready to receive them. He believed that if his position upon any particular proposition was correct its correctness would in due time be recognized and adopted.

While on the way to his winter home at Pinehurst, N. C., Mr. Sheppard stopped for a short visit with his son, Robert, at Newton Center, Mass., where he was stricken with pneumonia, and died after a brief illness, November 28, 1915.

The *Koran*, the Mussulman's Bible, says:

> "When a man dies they who survive him ask what property he has left behind. The angel who bends over the dying man asks what good deeds he has sent before him."

Mr. Sheppard's life was filled with good deeds. When confronted by an opportunity for service he never asked himself "What is there in this for me?"

but only, "What can I do to serve the association and the purpose it represents?" While his prudence in business brought him a modest fortune, he was unsparing and unremitting in his efforts to advance the moral and material interests of the community in which he lived and of the profession of which he was a part.

He gave liberally of his time and money to many causes from which he could expect no financial or other material reward. Upon the Massachusetts College of Pharmacy, upon the business management of the United States Pharmacopoeial Convention, and upon the American Pharmaceutical Association his work has left an impression that will last as long as these bodies shall continue.

May we not say with the Greek poet Callimachus, "'Tis ever wrong to say a good man dies."

SUBSCRIPTIONS TO AMERICAN PHARMACEUTICAL ASSOCIATION HEADQUARTERS BUILDING FUND.

No.		
	Previously reported	$3,528.90
90.	Frank Schachleiter, Little Rock, Ark.	100.00
91.	Frank H. Freericks, Cincinnati, Ohio	50.00
92.	Jerry McQuade, New York, N. Y. (Paid)	25.00
93.	Bernard Fantus, M.D., Chicago, Ill.	10.00
94.	W. A. Krafft, Chicago, Ill.	10.00
95.	C. B. Jordan, La Fayette, Ind.	10.00
96.	Edward Plaut, New York, N. Y.	100.00
97.	S. P. Kogon, Chicago, Ill. (Paid)	5.00
98.	A. J. Horlick, Racine, Wis. (Paid)	100.00
99.	E. F. Allen, Minneapolis, Minn.	100.00
100.	George D. Rosengarten, Philadelphia, Pa. (Paid)	25.00
101.	Frederick Rosengarten, Philadelphia, Pa. (Paid)	25.00
102.	Wymond H. Bradbury, Washington, D. C.	10.00
103.	Frederick J. Wulling, Minneapolis, Minn.	100.00
104.	Virgil Coblentz, New York, N. Y.	25.00
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106.	A. G. Rosengarten, Philadelphia, Pa.	25.00
107.	R. A. Lyman, Lincoln, Neb.	20.00
108.	Gustav Bachman, Minneapolis, Minn.	10.00
109.	Frederick B. Power, Washington, D. C.	10.00
110.	Carl Saalbach, Pittsburgh, Pa.	25.00
111.	A. B. Lyons, Detroit, Mich.	50.00
112.	E. Fullerton Cook, Philadelphia, Pa.	100.00
113.	W. Bruce Philip, San Francisco, Cal.	10.00
114.	Theodore A. Arneson, Montevideo, Minn. (Paid)	5.00
115.	A. Albrecht, Waukegan, Ill.	5.00
116.	J. Aug. Anderson, Duluth, Minn.	5.00
117.	John C. Muth, Baltimore, Md.	25.00
118.	John G. Godding, Boston, Mass.	100.00
119.	Fred W. Sultan, St. Louis, Mo.	100.00
120.	Heber W. Youngken, Philadelphia, Pa.	10.00
121.	Paul B. Anspach, Easton, Pa.	25.00
122.	J. W. Westcott, Baltimore, Md.	50.00
123.	Mrs. M. M. Gray, Chicago, Ill.	3.00
124.	Robert H. Bohmansson, Eureka, Cal. (Paid)	25.00
125.	J. G. Rosengarten, Jr., Philadelphia, Pa. (Paid)	25.00
126.	Ambrose Hunsberger, Philadelphia, Pa.	100.00
127.	H. C. Christensen, Chicago, Ill.	100.00
128.	Henry C. Fuller, Washington, D. C.	100.00
	Total.....	$5,176.90

EDITORIAL

E. G. EBERLE, EDITOR 253 Bourse Bldg., PHILADELPHIA

THE CLEVELAND MEETING.

THE seventieth meeting of the American Pharmaceutical Association held in Cleveland, August 15th–18th, can well be described in the vernacular as "peppy." Thanks to the live local committee, something was doing every minute and, as a result, things rushed along on schedule time and completed a week of real accomplishment. "Rush along" is the proper phrase, for, if the exact truth be told, the schedule was so crowded that at times inadequate attention had to be paid to important topics. It is no reflection upon the local committee to point out that it was too bad that no sessions were scheduled for Saturday, August 19th, as a session that morning would have relieved the crowded schedule of the preceding days. This, however, was really a mistake of the Council in voting for a four-day program.

As to the work accomplished, the foremost topic, that of reorganization, was handled in a conservative way. It is a witness to the "sweet reasonableness" prevailing among the members of the Council that this largely discussed topic, this project that brought forth during the past year some acrimonious debates, was finally passed by the Council by a unanimous vote.

Another important feature of the meeting was the definite organization of a National Conference on Pharmaceutical Research. The seemingly impossible has been accomplished. An elastic conference plan has been adopted that will not only bring together all of those interested in pharmaceutical research, including those interested in the National Research Council, but will also be likely to bring about enthusiastic coöperation among the research workers in pharmacy.

Research seemed to prevade the air of the Cleveland meeting. The Scientific Section presented a particularly rich program from which it is not unseemly to single out the address of D. I. Macht, winner of the 1921–22 grant from the A. Ph. A. research fund.

As to routine business, the address of President Hilton was upon the lofty and yet practical plane that characterizes the man whom the Association called to the presidential chair last year. The various sections—legislative, historical, commercial, scientific, and the indispensable dispensing section—were well attended and presented highly interesting programs. No one who attends the A. Ph. A. meeting can dare to say that pharmacy is a lost art, a dead issue. In fact, the only criticism that may be made of an A. Ph. A. program is that its abundant variety may induce mental indigestion unless wisely ingested.

A notable feature of the meeting was the presence of most of the members of the executive committee of the N. A. R. D., all there in their capacity as members of the A. Ph. A. So useful did this intermingling of the directors of the two great national pharmaceutical bodies seem to those present that steps were inaugurated to continue this spirit of friendly coöperation by the passage of a resolution that

each year, but at alternating meetings of the two associations, the executive committees of the two bodies should meet in friendly conference.

As to entertainment, the local committee "did themselves proud" and brought delight to all of their guests. Most pleasant features of the entertainments were the luncheons in the hotel, giving all of those in attendance the opportunity of getting well acquainted. In this connection, the pharmacists of Cleveland were more in evidence than is usually the case with the local druggists of other localities where the A. Ph. A. visits. This was undoubtedly due to the fact that the local druggists' association of Cleveland is an unusually virile body composed of almost 100 percent of the pharmacists of Cleveland.

The seventieth meeting of the American Pharmaceutical Association has gone the way of its sixty-nine predecessors, but the memory of it will linger long in the minds of those who were fortunate enough to be present. And now, let us begin to think of Asheville in 1923!

H. V. ARNY.

READJUSTMENT OF A. PH. A. ACTIVITIES FOR BETTER AND GREATER SERVICE OF AMERICAN PHARMACY.

Whether or not a reorganization of the American Pharmaceutical Association was desirable or necessary has been a much-discussed question for several years, and this may be pointed to as evidence of the need of some change. The discussion terminated in action when the Council of the Association at the New Orleans meeting directed its Executive Committee to make a thorough study of the matter and to submit at the Cleveland meeting a comprehensive plan for reorganization.

The Executive Committee published a tentative plan in the April issue of the JOURNAL OF THE A. PH. A., which elicited, as was desired, considerable criticism, both favorable and unfavorable, together with many suggestions for its improvement. After a very careful consideration of these, the Executive Committee submitted a final plan, as its unanimous report, to the Council at Cleveland, and which its members felt carried out their instructions from the Council.

The discussion which followed in the Council quickly disclosed that all were agreed that a basic reorganization of the A. Ph. A. was not necessary or desirable, but that a readjustment of its activities and procedure along the general lines laid down in the plan submitted by the Executive Committee was necessary to enable the Association to function as is desired and particularly to enlist the interest of the divisional and state associations, of each of which it is the mother association, in its work, at the same time enabling it to give each of them support in their several and necessary activities. With this agreement reached through the adoption of a series of resolutions proposed by Dr. J. H. Beal, the Council considered the plan seriatim, made such corrections as were thought advisable, and with unanimous approval submitted it to the Association.

In the general session no opposition was expressed to the adoption of the plan, but it seemed to be the general opinion that the requirement that only those state associations 51% of whose active members were also members of the A. Ph. A. could be represented in the House of Delegates, was so high as to make it practically impossible for most of the state associations to comply. Consequently,

it was unanimously voted that the plan should become effective when twenty state associations, not less than 10% of whose members hold membership in the A. Ph. A., have given notice of their acceptance of it; and it was further provided that such state associations as do approve will lose their voting privilege in the House of Delegates if at the end of five years less than 51% of their membership hold membership in the A. Ph. A. This change will enable the state associations to take advantage of this opportunity on a very reasonable basis, and also gives them a reasonable time in which to increase their representation in the A. Ph. A. membership to at least a majority basis. In turn, it gives the A. Ph. A., through a full-time secretary, and a better distribution of its working activities, the opportunity to render a better service to the state associations and, as a consequence, to arouse an increased interest on the part of their members.

It is pertinent to point out what this plan offers the state associations who now hold membership in the House of Delegates of the A. Ph. A. without any restriction, and to the divisional associations. Under the present plan the House of Delegates is very limited in its functions, as it can only receive delegates from other organizations and act as a restricted committee on resolutions, having no voice in the nomination or election of officers. Under the new form the House of Delegates becomes as the legislative body one of the four important divisions of the A. Ph. A., and, in view of its opportunities, possibly the most important. In addition to its present functions, it will select the three nominees for president, one of whom is elected, and the nine nominees for the Board of Directors, three of whom are elected, annually by the general membership. It elects the Secretary and Treasurer upon nomination of the Board of Directors, selects the place of meeting, receives the reports of the officers and of the standing and special committees and transacts all general business of the Association not otherwise provided for. From this it will be seen that the House, of whose members the state associations will provide the majority if the plan is accepted by them, becomes a potent factor in the work and activities of the Association and that the state associations are given an opportunity commensurate with their importance.

The provision that such national associations as may be approved shall have one delegate in the House also affords them the opportunity to take an active part in the work of the mother association and their interest is expected to be most helpful. The presence of several officers of these associations at Cleveland as members of the A. Ph. A. and the interest they took in the meeting were a most encouraging signs of the realization that coöperation is now more than ever the keynote to success for pharmacy. In this connection and as a further indication that no friction exists, reference should be made to the adoption of a resolution endorsing an annual joint session of the Executive Committees of the A. Ph. A. and the N. A. R. D. to be held alternately at the annual meetings of these associations.

With the state associations represented by the one delegate for each 500 A. Ph. A. members it has (in no case to be less than one), with each approved national association, the U. S. Army, the U. S. Navy and U. S. Public Health Service represented by one delegate each, with each section of the A. Ph. A. and each approved local branch represented by one delegate each, and with the members of the Board of Directors of the Association holding membership therein, it can be reasonably said that in this reorganized House of Delegates the dream of one rep-

resentative central organization to act as a clearing house for all the truly pharmaceutical organizations of America has a chance to become a reality.

Under the plan, the Board of Directors, as the business organization, supplants the present Council. Its membership is composed of nine elected members, three of whom are elected annually by the general membership upon nomination by the House of Delegates, with the President, Secretary and Treasurer as ex-officio members. The Board of Directors nominate the Secretary and Treasurer; appoint the Editor or Editors and their assistants; have charge of all publications, funds and finances of the Association; fix the salaries of the officers; prepare the annual budget; act for the Association and the House of Delegates in the interim between meetings and elect a President pro tem, if necessary. This provides a compact, responsible unit surrounded by reasonable safeguards.

The Scientific, Professional and Commercial Sections are continued as at present. They have one representative each in the House of Delegates, rather than in the Council as at present, and their chairmen are the Vice-Presidents of the Association.

The General Session receives the address of the President and the Report of the House of Delegates which jointly constitute a résumé of the work of the Association for the year. Action taken by the House of Delegates may be negatived at any General Session by a vote of not less than fifty members present and voting. This gives the general membership the right of review of the acts of its constituent bodies; the General Session can also transact such general business as may be presented to it.

With the unanimous approval of the plan by the A. Ph. A., it only remains for at least twenty states to signify their approval under the conditions above mentioned, to put it into effect. When this is done, the A. Ph. A. will be greatly strengthened in representative membership and will be in the position to more nearly serve the purpose for which it was originally intended; that is, to represent, as far as is helpful, American pharmacy in its entirety. The state and divisional organizations will be, to an extent at least, federated, and will have the opportunity to come into that close contact and coöperation which is so necessary, without losing their individuality or being hampered in their separate activities.

As was so timely expressed at Cleveland by one whose work for this purpose gives him authority, the era of pharmaceutical organization in the true and, therefore, coöperative sense of the word, has just begun. Anyway, a beginning has been made and nothing contributed more to this happy outcome than that many supposed misunderstandings among those who must coöperate were, through personal contact, found not to exist at all, but that in their stead was a community of interest in the common cause—the betterment of American Pharmacy.

E. F. Kelly.

CONSTRUCTIVE EFFORTS IN BEHALF OF AMERICAN PHARMACY.

THE American Pharmaceutical Association has held its 70th Annual Convention and thereby has marked another milestone in its splendid history. The constructive achievements of this organization in the field of American Pharmacy

are too well known to warrant more than a passing reference to the efforts of the unselfish men who have carried on during these seventy years. The contribution of their research, the mapping out of a systematic plan of teaching, their continued and persistent efforts to advance educational standards, and their devoted efforts to make of the practice of pharmacy an occupation of which its votaries might well be proud, have evolved a well-rounded-out scheme which compels our admiration and makes every branch of American pharmacy its debtor.

In September, at Detroit, will be held another convention—that of the National Association of Retail Druggists, an organization that operates in a more highly specialized but less comprehensive way than does the A. Ph. A., in that it functions on behalf of retail pharmacy alone. This organization, while less mature than the American Pharmaceutical Association, is no less sincere in its efforts to advance and elevate American pharmacy. It came into being because the evolution in retail practice brought about conditions of such a nature as to indicate the need for an organization that would devote all its efforts—continuously—to solving the problems of the retailer. The achievements of the N. A. R. D. during the years of its existence have justified its formation and we humbly acknowledge our debt to its founders. The goal they sought for one branch of pharmacy is but the same that was sought by our honored predecessors (and by our no less honored contemporaries) in the A. Ph. A. for all branches of pharmacy, namely, to uphold the honor, to promote the success, and to mitigate the evils of our chosen vocation.

Our objective being one and the same, the National Association of Retail Druggists bespeaks the counsel and coöperation of the American Pharmaceutical Association and pledges a reciprocal attitude toward a continuance of the constructive efforts of the A. Ph. A. on behalf of American Pharmacy.

May we not hope that the resolutions adopted at the Cleveland Convention of the American Pharmaceutical Association will have opened a new era of coöperative pharmaceutical effort? AMBROSE HUNSBERGER.

COÖRDINATED ENDEAVOR OF PHARMACEUTICAL ASSOCIATIONS.

SOON after the organization of the National Association of Retail Druggists, in the Section on Commercial Interests, A. Ph. A., the late Mr. S. A. D. Sheppard said in nominating Professor H. P. Hynson (also deceased) for the chairmanship of the Section—that he nominated him "not only for his ability to preside, but for the special reason that we thereby bring together the American Pharmaceutical Association and the National Association of Retail Druggists." (Professor Hynson was then President of the N. A. R. D.)

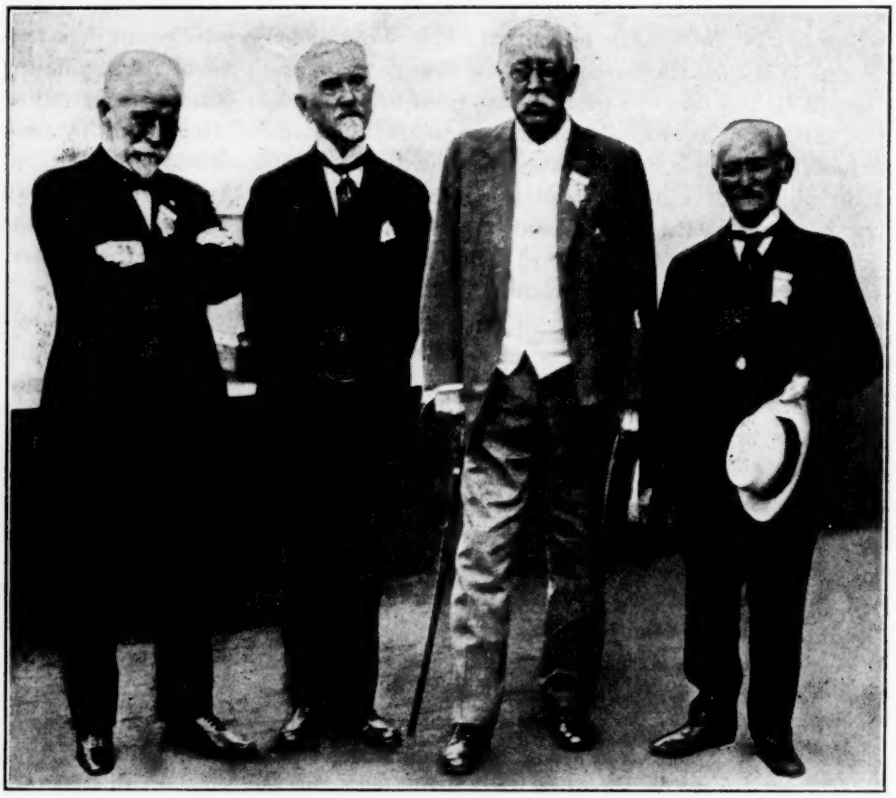
During the recent meeting of the American Pharmaceutical Association, a veteran druggist of Cleveland, Ernst A. Schellentrager, though feeble, sent greetings to the members in convention, and, by a rising vote, the Secretary was instructed to convey the greetings of the Association. He it was who, at the 1899 Convention of the A. Ph. A., moved a hearty endorsement of the National Association of Retail Druggists by the Section on Commercial Interests of the American Pharmaceutical Association.

The idea to create a National Association of Retail Druggists developed in the American Pharmaceutical Association. The spirit which animated the phar-

macists in 1899 has continued, and makes possible the working together of two organizations in which many of the most active in both associations are affiliated. This cordiality was so pronounced at the recent A. Ph. A. meeting that it prompted the Editor to ask our fellow-member Ambrose Hunsberger as President of the National Association of Retail Druggists to prepare a message for the JOURNAL OF THE A. PH. A.

It is coördinated coöperative work for pharmacy that will serve it and the drug industries best, and will make for their progress. A splendid suggestion to be carried into effect is that the Executive Committees of the two associations will arrange their preconvention annual meetings so that one year they will be held about the time of or during the convention of one of the organizations, and the next year the other association will be thus honored.

The American Pharmaceutical Association reciprocates the wishes expressed for American Pharmacy. E. G. E.



CLEVELAND A. PH. A. MEETINGS, 1872–1922.

Elsewhere in this issue reference is made to the "golden jubilee" celebrants at the Cleveland Meeting of the American Pharmaceutical Association. They are, left to right: Thomas D. McElhenie, Brooklyn, N. Y.; Daniel Myers, Cleveland, Ohio; James S. Robinson, Memphis, Tenn.; Jos. L. Lemberger, Lebanon, Pa. George H. Schafer, Honorary President, A. Ph. A., 1914–1915, was also present but had not arrived when the group picture was taken.

A REINVESTIGATION OF THE PROXIMATE COMPOSITION OF RHAMNUS FRANGULA.*

BY JOHN ABERDEEN GUNTON WITH GEORGE D. BEAL.

I. Introduction.—While engaged in a comparative series of investigations on the various drugs which owe their therapeutic value to their anthraquinone content a redetermination of the proximate composition of *Rhamnus frangula*, or alder buckthorn, was undertaken. This bark, because of its agreeable cathartic properties, has been in use in Continental Europe since the Middle Ages. It was early investigated by Gerber[1] who stated in 1828 that the active principles were resinous and hard to separate, and by Binswanger[2] who isolated the substance which he called *rhamnoxanthin* and which he assumed to be simply a coloring agent, and also a bitter principle of resinous nature to which its physiological action was ascribed.

Buchner[3] again isolated rhamnoxanthin, which he called *frangulin*, and made a note of its properties as being similar to those of hydroxy-anthraquinones. These same properties he found to be duplicated by the yellow coloring substances obtained from rhubarb. Casselman[4] compared this frangulin with the substance which he had obtained from rhubarb and found that they were not identical. Kubly[5] isolated a glucoside-like substance which he named *avornin* and from which he obtained on hydrolysis *avornic acid* and a sugar. Faust[6] found that the substances isolated from the bark by Kubly and Casselman were identical and that the avornic acid of Kubly, which he himself called frangulic acid, had an anthracene nucleus.

Liebermann and Waldstein[7] in 1876 determined that the principal constituent of the bark was emodin, which they obtained with a melting point of 259° and an empirical formula of $C_{15}H_{10}O_5$. Liebermann[8] later stated that emodin was identical with frangulic acid and that it was a trihydroxy-methyl-anthraquinone. *Chrysophanic acid*, hereinafter referred to as *chrysophanol*, he found to be a dihydroxy-methyl-anthraquinone.

Schwabe[9] illustrated the hydrolysis of the previously described frangulin by the equation

$$C_{21}H_{20}O_8 + H_2O = C_{15}H_{10}O_5 + C_6H_{12}O_6.$$

He furthermore confirmed Liebermann's formula for emodin and stated that the sugar accompanying the same was in all probability *rhamnodulcite*. Thorpe and Robinson[10] agreed on the formula $C_{21}H_{20}O_8$ assigned to frangulin by Schwabe, and Thorpe and Miller[11] found that the sugar obtained on the hydrolysis of frangulin was identical with the rhamnose obtained by the hydrolysis of quercitrin.

A compound with the same characteristics as frangulin, with a melting point of 237°, was obtained by Dohne and Engelhardt[12] in small quantities from cascara. This substance was thought to be a glucoside, since on hydrolysis there were obtained emodin and a sugar other than rhamnose, and was accordingly given the name *purshianin*. This has been since questioned by other chemists who have investigated cascara. Free emodin and chrysophanol have been obtained from frangula by Tschirch and Pool.[13]

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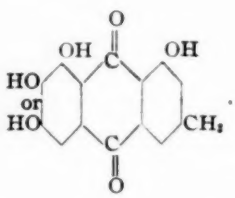
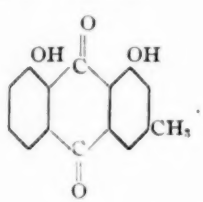
* Abstracted from a thesis presented by J. A. Gunton in partial fulfillment of the requirements for the Degree of Doctor of Philosophy in Chemistry in the Graduate School of the University of Illinois. Read in abstract at the New Orleans meeting of the American Pharmaceutical Association.

It may be said that the drugs which owe their cathartic properties to anthraquinone derivatives all contain emodin or its isomer, *aloe-emodin*, which is a dihydroxy-anthraquinone with a primary alcohol group. Emodin is characteristic of frangula, cascara, rhubarb and the species of Rumex which have been examined, while aloe-emodin is characteristic of aloes and senna. The structure of emodin is probably represented by the formula



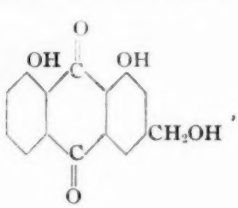
Its monomethyl ether, having less acidic properties than emodin because of the neutralization of one hydroxyl group, is associated with emodin in smaller amounts.

Chrysophanic acid, or chrysophanol, is found in practically all of these cathartic drugs, and has been assigned the formula

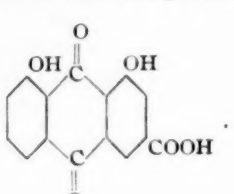


From inspection of this formula it will be seen that the properties of chrysophanol and emodin-monomethyl ether must be similar.

Two other important derivatives of β-methyl anthracene are the aloe-emodin, previously mentioned, the formula for which is given as

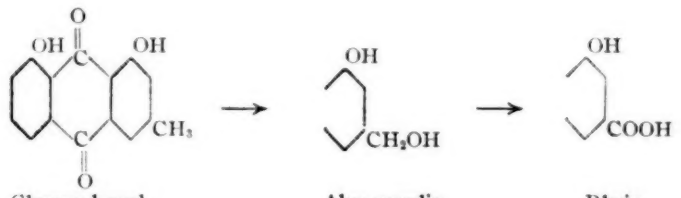


and *rhein*, which is a carboxylic acid with the probable formula



There is no mention anywhere in the literature of the finding of either of these substances in any of the varieties of Rhamnus.

Oesterle[14] has shown that chrysophanol, aloe-emodin and rhein are three stages in the oxidation of the same hydroxy-methyl-anthraquinone, as follows:



Chrysophanol Aloe-emodin Rhein

Our purpose in taking up this investigation was primarily to determine whether the anthraquinone derivatives which have been regarded as the important active constituents of the drug were present in the free form or principally in some sort of combination, possibly as a glucoside. Questions of lesser importance developed from time to time during the study.

The material used in this investigation was a fifty-pound lot of the air-dried drug obtained in France by Fuller, Morrison and Company of Chicago. This was in the form of small quills having a grayish black color on the outside and a reddish tint on the inner surface. Even when viewed superficially the drug could be distinguished readily from cascara. The taste, when macerated in water, was pleasant in its bitterness.

A small quantity of fresh bark was obtained from the garden of Doctor James H. Beal in Urbana. This was taken in January, and was dried at room temperature. Our object in taking this small sample was to determine, if possible, the emodin content at a time of year when the plant was inactive.

Apparatus.—The percolations with alcohol were carried out in the continuous extraction apparatus invented and patented by John Uri Lloyd, and the thanks of the authors are extended to Professor Lloyd for permission to use a replica of his apparatus manufactured by Deckebach and Sons of Cincinnati, Ohio. In this apparatus, which in our laboratory could be used for the percolation of a 5.5 kilo sample of drug, the percolate flows directly into a concentrator where the menstruum is removed by surface evaporation with the aid of a steam jacket surrounding a portion of the concentrator. The concentrated extract falls by circulatory displacement into a cooled zone. The time during which heat is applied to the extractives is thus reduced to a minimum and the decomposing and hydrolytic action of the heat accordingly diminished.

The large-scale extractions with ether and chloroform upon the dry resins were made with the aid of the Gramercy Extraction Apparatus of Eimer and Amend and also in part with a modified Soxhlet apparatus composed of an inverted aspirator bottle as extractor, with a condenser and a round-bottomed flask as a receiver for the extract. This improvization has been frequently described by chemists and needs no further mention.

The extractions with immiscible solvents, which necessitated the handling of hundreds of liters of liquids, were performed in twelve liter bottles, securely stoppered with rubber stoppers, and rotated about their longitudinal axes in an Abbé Vertical Ball Mill. There was practically no shaking effect obtained with this arrangement, the liquids coming into intimate contact with each other with a

rolling motion. In only one instance was an emulsion formed, and it was believed that this was due to an improper placing of the bottle in the holder, imparting a slight jerk to the bottle during each revolution.

II. Preliminary Examination. Moisture.—All investigations were made using the air-dried drug. For the determination of moisture a sample was dried to constant weight in a vacuum oven at 98°.

Nitrogen.—The nitrogen content was determined by the Kjeldahl method, using copper sulphate as the catalyst and potassium sulphate to raise the boiling point of the digestion mixture.

Ash.—Portions of the drug were ashed in an electric muffle at 950°, using shallow platinum dishes. The ash was light gray in color, with a green cast.

Hydrocyanic Acid.—The presence of this acid has been claimed by a number of investigators, and one author has ascribed its popularity as a cathartic to its "peach-kernel" taste. The HCN content was determined by the method outlined by Whirthle and Rheinberger[15] for the examination of Rangoon beans. The ground bark was digested for twenty-four hours with water containing one percent of tartaric acid and the liquid then distilled with steam. The distillate was titrated with $N/100$ silver nitrate according to Liebig's method.

The results of the above determinations were as follows:

Moisture	6.01%
Ash	5.75%
Nitrogen	0.74%
Protein, N × 6.25	4.62%
Hydrocyanic acid	0.005%

Manganese.—The green tint of the ash suggested the presence of manganese, a frequent but small constituent of drugs. The ashes of cascara and rhubarb have a distinctly green color, and Westman[16] has found the "manganese number" of the ash of cascara to be of fairly constant value in the identification and determination of this drug in medicines. Accordingly the manganese content of the drug was determined by the method of the A. O. A. C.,[17] that of cascara and rhubarb being determined for comparison. The values obtained were:

Frangula	0.0084%
Cascara	0.0402%
Rhubarb	0.0223%

Since the purgative properties of these drugs are admittedly due to their content of anthraquinone derivatives and this content with regard to frangula and cascara is about equal there seems to be no relationship between the manganese content and the medicinal value of the bark.

Sublimation.—In charring the bark during the ashing process copious yellow fumes were given off before the combustion temperature was reached. A portion of drug was heated in a small test-tube having a side arm through which it could be evacuated and containing an inner test-tube to serve as a condenser. A moist yellow-brown sublimate was obtained in which a few microscopic crystals could be seen. When the sublimate was moistened with dilute alkali it gave a reddish brown color similar to that obtained at times with derivatives of hydroxy-anthraquinones.

Alkaloids.—Eccles[18] having found traces of an alkaloid in fluidextract of cascara, there seemed to be a possibility that members of this group might exist in frangula. A portion was thoroughly extracted with Prollius solution and the extract in turn shaken with five percent hydrochloric acid. The light yellow acid solution was clarified with lead subacetate and the filtrate deleaded. Mayer's reagent, picric acid and iodine gave precipitates of doubtful significance.

A second portion of drug was barely moistened with water and mixed with an equal volume of magnesium oxide, then dried and extracted with ether. The drug mixture became brick-red in a short time and almost black on standing. The ether extract was deep yellow in color and deposited a crust of anthraquinones on the inner surface of the flask. This ether extract was shaken with acid as above, obtaining the same yellow solution, which was rendered faintly alkaline with sodium hydroxide and again extracted with ether. The resulting extract was shaken with one percent hydrochloric acid, and this solution tested with the same series of precipitants. The negative results obtained led us to believe that the first reactions had been given by proteins not completely separated by the clarifier or by ammonia passing over from the Prollius solution.

Total Extraction.—In order to determine the nature and amount of extractives obtained by various solvents a twenty-five gram portion of bark was successively extracted with petroleum ether, ethyl ether, chloroform, ethyl acetate and ninety-five percent alcohol. The petroleum ether extract consisted chiefly of fatty material, the ether extract of anthraquinones with a small amount of fat, while the other extracts were resinous in nature and contained the bitter principles of the bark as well as the anthraquinones. The yields to the various solvents were as follows:

Petroleum ether	3.8%
Ethyl ether	2.3%
Chloroform	4.8%
Ethyl acetate	6.8%
95% alcohol	36.0%

Hydroxy-anthraquinones.—Various methods have been devised for the quantitative determination of the members of this group together, all since 1900. These depend on colorimetric or precipitation reactions of the derivatives. They have been quantitatively studied by Tschirch and Hebeisen[19] and found to yield comparable results. Four methods have been suggested by Tschirch[20] and his students as follows:

1. A spectroscopic method based on the absorption spectra of hydroxy-anthraquinones dissolved in normal alkali.

2. A colorimetric method based on the characteristic red color of alkaline solutions of hydroxy-anthraquinones.

3. A modification of the above for use without a colorimeter.

4. A gravimetric method for the precipitation of their diazonitranilin derivatives.

Another colorimetric method by Warin[21] is based upon the color given by nickel salts and alkali. This is the reaction which was used by Beal and Okey[22] to distinguish the various emodin-containing drugs. The most recent and probably the most rapid method is that of Daels,[23] who extracts the anthraquinones present

in the drug with chloroform, both before and after acid hydrolysis, obtaining values for "free" and "combined" anthraquinones.

Determination of Free Hydroxy-anthraquinones.—Five grams of the finely ground bark, dried at 70°, were placed in a 400-cc Erlenmeyer flask and weighed after the addition of two hundred cc of chloroform. The flask was connected with a reflux condenser and the solvent boiled for fifteen minutes, then cooled, decanted through a filter and the residue washed with chloroform. This solution was shaken with five percent sodium hydroxide solution until the color was removed from the chloroform and the alkali extract no longer became pink. These combined alkaline extracts were shaken with small amounts of chloroform to remove emulsified fats and then acidified with hydrochloric acid and the liberated anthraquinones extracted with chloroform. The chloroform solution was filtered and evaporated to dryness in a tared beaker, then dried at 100° and weighed. Assuming that the "primary" glucosides of the plant are insoluble in chloroform, the residue represents the free acidic constituents.

Determination of Combined Hydroxy-anthraquinones.—All of the residual drug from the first extraction was returned to the flask and chloroform added to the previous weight. After adding fifty cc of 25% sulphuric acid the flask was again weighed and the mixture refluxed at the boiling point of the chloroform for two and one-half hours. After cooling and making up to the original weight with chloroform, one hundred and fifty cc of the chloroform were filtered and shaken with fifty cc of 10% sodium bisulphite solution. The chloroform was then shaken with one hundred cc of 1% hydrochloric acid and the chloroform finally evaporated and the residue weighed as before. A number of other drugs were examined at the same time for comparative purposes.

Drug.	Free.	Anthraquinones combined.	Total.
Frangula	1.14%	2.63%	3.77%
Frangula (recent)	0.87	3.39	4.26
Cascara	1.11	2.70	3.81
Rhubarb	0.29	2.32	2.61
Rumex crispus	0.72	1.18	1.90
Rumex ecklonianus	0.26	1.36	1.62

For the specimen of *Rumex ecklonianus* we are indebted to Doctor Rudolph Marloth of Capetown, South Africa.

Cold Water Extract.—Extraction of a small portion of the bark with cold water yielded an extract which was quite bitter in taste and gave the color reactions of hydroxy-anthraquinones. The soluble matter amounted to 18% and the ash thereof to 0.80% of the bark. Sugars were indicated by the Molisch and Fehling reactions. Shaking out the water extract with chloroform removed material equal to 0.56% of the bark.

A portion of the aqueous extract was allowed to react with emulsin according to the procedure of Bourquelot[24] and the quantity of chloroform extract compared with that obtained before action of the enzyme. An increased amount of chloroform extract was obtained, which was taken as evidence of the occurrence of some of the extractives in combined form.

Hot Water Extract.—Another small portion of bark was digested repeatedly with water on the steam-bath and the percentage of extractives found to be 36.80%.

The ash amounted to 1.95% and the chloroform extract to 2.40%. More strongly positive tests for sugars and hydroxy-anthraquinones were obtained, while the extract also gave a test for pentoses with phloroglucin.

A larger portion of the bark, four hundred grams in all, was digested on a steam-bath at 70° with distilled water until exhausted. This solution contained all of the bitter principles and had cathartic properties. After spontaneous evaporation to a thick syrup the extract was taken up with alcohol and mixed with sawdust which had been purified by exhaustion with alcohol. This mixture after drying was extracted in a Soxhlet with petroleum ether, ethyl ether, chloroform, ethyl acetate and ethyl alcohol.

The petroleum ether extract was oily with a slight yellow stain giving a feeble reaction with alkalies. The ether extract showed a few orange crystals in an oily residue. These had the appearance and reactions of impure emodin. The chloroform extract was very small and the slight ethyl acetate residue was resinous with an odor suggestive of tanbark. The alcoholic extract was resinous, nothing crystalline being obtained therefrom, but contained all the bitter material of the aqueous extract.

During the latter part of the water extraction there remained in suspension over the bark some fine golden yellow crystals, while the epidermal layers of the bark showed a yellow incrustation. This was crystalline and homogenous, soluble in dilute alkali with a red color, and was supposed to be anthraquinone derivatives liberated by hydrolysis and crystallized from the water.

Extraction with Hot Ammonium Hydroxide.—The bark which had been extracted with water was exhausted with warm 2% ammonia, obtaining fifteen liters of red solution. This was neutralized with hydrochloric acid and filtered, and the residue, after drying, extracted with petroleum ether and ethyl ether. The acid filtrate yielded only a trace of matter to ether.

The petroleum ether removed a small amount of brown oil, a portion of which was undoubtedly due to the solvent. A few crystals of emodin were seen therein. The ether extract yielded small brown nodules, m. p., 232°, which on recrystallization were found to be emodin. The material was not split by boiling dilute acid.

Extraction with Cold Ammonium Hydroxide.—Another four hundred gram portion of the bark was completely extracted with cold 2% ammonia and after filtration the solution was acidified and again filtered. The precipitate showed some evidence of hydrolysis with acid, but no definite compound was isolated.

Extraction with 95% Alcohol.—Four and one-half kilos of the bark were extracted with 95% alcohol in the Lloyd apparatus and the extract concentrated to a thick syrup. This was allowed to stand for four months in a cool place and the separated material removed. This was digested on the steam-bath with 95% alcohol to dissolve as much as possible and the solution freed from fatty matter with petroleum ether. Water was added gradually while the flask was on the steam-bath and the digestion continued while a light brown granular material gradually deposited. This melted at 212° with some decomposition, subliming slightly above 100°. Purification by solution in alcohol and precipitation with ether raised the melting point to 229°.

Digestion of some of the alcoholic extract with water in the same fashion yielded material melting at 228°. This corresponds to the melting point of the

rhamnoside frangulin described by Thorpe and Miller (*loc. cit.*). A small portion of the brown material was suspended in 10% sulphuric acid and heated at 100° for two hours in an attempt to hydrolyze the possible glucosides present. The orange-colored insoluble product was filtered off and after crystallization from alcohol was identified as emodin.

The filtrate, which was brown in color and had an odor of caramel, was tested for sugars. It gave the Molisch reaction, reduced Fehling's solution and gave the phloroglucin-hydrochloric reaction for pentoses and a positive reaction for methyl pentose with alcohol and sulphuric acid. The sugar was evidently rhamnose and its original state of combination was probably as the glucoside frangulin.

Study of the Sugars.—Hudson and Harding's[25] method of obtaining xylose was applied to the bark. The extract obtained with 2% ammonia was hydrolyzed by boiling with sulphuric acid of 7% concentration. The acid was neutralized with barium carbonate and the filtrate concentrated.

An osazone prepared from this solution melted at 180°, corresponding with that for rhamnose. The precipitate forming during the acid hydrolysis consisted of anthraquinones. Water and ammonia had failed to remove enough sugar from the bark to form an osazone, therefore it must have been removed by the ammonia in glucosidic combination and liberated by acid hydrolysis.

Following the ammonia digestion the bark was suspended in 7% sulphuric acid and refluxed for several hours. After filtration, neutralization with barium carbonate and refiltration, a syrup was obtained by evaporation *in vacuo*. No crystals were obtained on standing but the addition of five volumes of absolute alcohol brought down a few white needle-like crystals. The osazone of the sugar melted at 152° after crystallization from alcohol as fine yellow needles. The crystalline form of the sugar and its osazone and the melting point of the osazone identified the sugar as xylose.

III. Systematic Examination.—This was carried out following in general the scheme of analysis which has been developed by Power and his associates at the Wellcome Chemical Research Laboratories. The bark was percolated with alcohol in the Lloyd apparatus and the concentrated extract, a heavy syrup, mixed with purified sawdust and dried. The mixture was extracted successively with petroleum ether, ether, chloroform and ethyl acetate. Each of these extracts was shaken in turn with 8% ammonium carbonate, dissolving strongly acidic substances; 5% sodium carbonate, dissolving less acidic substances; and 2% sodium hydroxide dissolving the most weakly acidic substances, including phenols. The further treatment of the extracts was as suggested by their character.

Following the use of these solvents the resin was dissolved in alcohol and hydrochloric acid added to 1% concentration and the mixture then boiled on the steam-bath under a reflux condenser for twenty-four hours or more. The hydrolyzed resin was precipitated by pouring the solution into six volumes of water, the trace of acid facilitating precipitation of the resin. The precipitate was filtered, washed and dried and treated in the same fashion as the original resin. The water solution was extracted with the same series of solvents.

Legend of Operations.—In order to facilitate identification of the different fractions a code was devised in which the common reagents and operations were represented by letters, as follows:

A. Original bark.
B. 95% alcoholic extract.
C. Petroleum ether extract.
D. Ethyl ether extract.
E. 8% ammonium carbonate extract.
F. 5% sodium carbonate extract.
G. 2% sodium hydroxide extract.
H. 50% alcoholic extract.
I. Neutralized with hydrochloric acid.
J. Precipitate.
K. Residue after ABCD.
L. Hydrolysis with 1% hydrochloric acid.
M. Aqueous portion.
N. Resin.
P. Amyl alcohol extract.
R. Residue after ABCEFG.
S. Residue after ABCDEFG.
T. Chloroform extract.
U. Solution in glacial acetic acid.
V. Extraction with 2% ammonia.
W. Extraction with water.
X. Extraction with ethyl acetate.

(Example: ABCDEFGIMDEFGIJU. A 95% alcoholic extract of the bark was extracted successively with petroleum ether and ethyl ether. The ether extract was washed with ammonium carbonate, sodium carbonate and sodium hydroxide and the latter solution acidified with hydrochloric acid and filtered. The filtrate was shaken with ether and the ether solution extracted with the three alkalies. The sodium hydroxide solution neutralized with hydrochloric acid gave a precipitate which was dissolved in glacial acetic acid for crystallization.)

The 95% Alcoholic Extract. AB.—Seventeen and one-half kilos of the bark in No. 30 powder were extracted in the Lloyd apparatus, the concentrated extract amounting to about four and one-half liters. This was dark brown in color with a greenish shade suggestive of chlorophyll. This was mixed with purified sawdust and dried, leaving a friable mass which was extracted with the series of solvents described above.

A. Petroleum Ether Extract. ABC.—This was greenish yellow in color, containing chlorophyll and fat. The fat furthered emulsification during the alkaline extractions.

1. 8% Ammonium Carbonate Extract. ABCE.—This was deep red in color, becoming yellow when neutralized with acid and depositing a fine brownish yellow precipitate, *ABCEIJ*. The filtrate, *ABCEIM*, was yellow and was extracted with ether and amyl alcohol. These solutions were concentrated, shaken with the series of alkalies and the alkaline solutions neutralized and shaken with ether.

The Ether Extract, ABCEIMD, yielded crystallizable material only to sodium carbonate, *ABCEIMDEFIMD*. This was obtained from its ether solution as a slight yellow-orange residue, melting at 249° when freed from oily matter. This was undoubtedly emodin. The other fractions gave yellow oily residues with mere traces of anthraquinones.

The Amyl Alcohol Solution, ABCEIMDP, while deeply colored with extractives, yielded little material to alkalies and that only fatty or resinous. Whenever amyl alcohol was used for extraction we noted that even a very dilute solution

of anthraquinone derivatives was deeply colored, while the color of an ether solution did not become deep until the solution was quite concentrated.

The Precipitate, ABCEIJ, was extracted with chloroform, the extract, *ABCEIJT*, being dark colored. This left on evaporation a fatty resin with no crystals, and was probably a mixture of anthraquinone, as emodin, and fat.

2. The 5% Sodium Carbonate Fraction, ABCEF.—The deep red solution was siphoned into concentrated hydrochloric acid, stirring the mixture with air. The precipitate, *ABCEFIJ*, was dried and extracted with ether and chloroform. The material thus obtained was too small for identification.

The filtrate, *ABCEFIM*, was shaken with ether and amyl alcohol and the ether extract shaken with the three alkalies. Ammonium carbonate removed a small amount of semi-liquid material with an odor of ethyl acetate and butyrate and traces of anthraquinones. Sodium carbonate extracted impure emodin, while sodium hydroxide extracted chrysophanol with a small amount of emodin-monomethyl ether.

3. The Sodium Hydroxide Fraction, ABCEFG.—Difficulty was encountered in this extraction because of emulsification. The main portion of the emulsion was acidified, when the semi-solid material could be separated from the aqueous portion. The filtrate, *ABCEFGIM*, was yellow and deposited on standing a fine yellow powder found to be chrysophanol.

The semi-solid material, *ABCEFGIJ*, was saponified and the aqueous soap solution extracted with ether. When the solvent was evaporated a waxy brown mass with an acrid soapy taste resulted, which on recrystallizing eight times from alcohol yielded white crystals, m. p. 134°. This melting point has been previously given for the phytosterol *rhamnol*, and the product agreed with previous preparations of this laboratory. The acetyl derivative melted at 120° and the compound gave the Liebermann-Burchard[26] reaction for phytosterols with acetic anhydride and sulphuric acid. This phytosterol was first discovered by Jowett[27] in cascara and has been reported by Beal and Okey[28] in *Rumex crispus* and by Tutin and Clewer[29] in *Rumex ecklonianus*. A neutral hydrocarbon accompanied the rhamnol but could not be purified for identification.

The soap solution was neutralized and extracted with ether and the ether extract in turn shaken with sodium carbonate, removing emodin, and with sodium hydroxide, removing chrysophanol. The latter when recrystallized from absolute alcohol formed golden yellow plates melting at 191°. When mixed with the corresponding material obtained by Beal and Okey from *Rumex crispus* the melting point remained unchanged. The diacetyl derivative prepared after long acetylation was greenish yellow in color and melted at 240°.

B. The Ethyl Ether Extract, ABCD.—The combined ether extracts from the resin were concentrated to five liters and shaken with the three alkalies. The ammonium and sodium carbonate fractions were deeply colored, the sodium hydroxide fraction much less so. Each of the extracts was acidified and filtrate and precipitate examined. The neutral material left in the ether was found to be the same mixture of rhamnol and hydrocarbon found in the petroleum ether extract.

1. Ammonium Carbonate Fraction, ABCDE.—This formed a yellow-brown precipitate on acidifying and the filtrate continued to deposit yellow flocks until practically colorless, yielding finally no extractives to ether. The precipitated

matter, *ABCDEIJ*, was extracted with petroleum ether, ether and chloroform. The petroleum ether removed a very small quantity of yellow resin which was found to be a mixture of emodin and fat.

Ether dissolved practically all of the precipitated material, the dark brown solution, *ABCDEIJD*, depositing dark red crystals in the Soxhlet flask during the extraction. In all about two grams of red crystals were obtained as a result of the extraction. The crystals as first deposited melted at 225°, but were shown by failure of acid hydrolysis to be non-glucosidic and on crystallization from glacial acetic acid very pure emodin was obtained. This emodin agreed in all respects with samples which had been prepared from *Rumex crispus* and cascara. The material extracted by chloroform was of the same character as the ether extract but very small in amount.

2. The Sodium Carbonate Fraction, ABCDEF.—Practically all of the extractives were precipitated on acidifying. The precipitate, *ABCDEFIJ*, yielded a trace of emodin to petroleum ether and a mixture of emodin with some chrysophanol to ether. Since it was evident that the sodium carbonate had some solvent action on the less acidic constituents, the precipitate was dissolved in ether and the sodium carbonate-sodium hydroxide separation repeated. Pure emodin and chrysophanol were thus obtained from the proper fractions.

3. The Sodium Hydroxide Fraction, ABCDEFG.—Additional quantities of emodin and chrysophanol were obtained from this fraction.

C. Chloroform and Ethyl Acetate Fractions.—These solvents dissolved very little anthraquinone, the ones present being emodin and chrysophanol.

The Hydrolyzed Resin, KBL.—The sawdust marc was percolated with alcohol and the extract concentrated to a thin syrup, having a volume of eight liters, to which was added one percent of concentrated hydrochloric acid. The mixture was refluxed on the steam-bath for four days and the resin precipitated by pouring the solution into six volumes of water. The precipitate, *KBLMN*, which was dark brown in color, was filtered and dried and the filtrate concentrated *in vacuo* to twelve liters, keeping the reaction of the solution neutral. Some humus-like material, *KBLMJ*, separated during the concentration and was saved for examination.

D. The Water-Insoluble Resin, KBLMN.—The resin was dissolved in a small amount of alcohol, mixed with purified sawdust, dried and extracted with the usual solvents.

1. Petroleum Ether Extract, KBLMNC.—This was light yellow in color and consisted of a fatty residue, resulting in part from the solvent, with only enough nanthraquinone to give a color.

2. Ethyl Ether Extract, KBLMNCD.—So much of the resin dissolved in ether and was deposited in the flasks that frequent changing of the flasks and solvent was necessary. On standing the solution deposited orange-red rosettes, altogether forty grams of ether-soluble material being obtained. The remaining ether solution, concentrated to about five liters, was extracted successively with the three alkalies, leaving but a trace of fatty matter in the ether.

a. Ammonium Carbonate Fraction, KBLMNCDE.—A dark red, almost crystalline, precipitate formed between the solvent layers. This material was filtered but even on careful drying the ammonium salt which had been formed was broken

down with loss of ammonia, the residue yielding pure emodin on crystallization from glacial acetic acid. Acidifying the ammoniacal solution and extracting with ether gave a further crop of emodin. The extraction of emodin at this point was due to its high concentration in the ether solution, favoring the formation of the unstable ammonium salt.

b. Sodium Carbonate Fraction, KBLMNCDEF.—Several extractions with 5% sodium carbonate solution were required to remove all of the soluble material, which was identified as emodin.

c. Sodium Hydroxide Fraction, KBLMNCDEFG.—On acidifying the brilliant red solution a light yellow precipitate formed, which on crystallization from alcohol melted slowly at 160°. This, evidently a mixture, was thought to consist of chrysophanol and emodin-monomethyl ether. These were separated, as described by Jowett (*loc. cit.*), by dissolving 0.3 gram of the mixture in concentrated sulfuric acid and heating slowly to 160° with an oil-bath, then cooling and slowly pouring the mixture into water. There was thus formed a green amorphous precipitate which was partially soluble in chloroform. The mixture was shaken with chloroform until no more yellow coloration was obtained and the chloroform extract shaken with sodium carbonate and sodium hydroxide. Emodin, from the demethylation of the monomethyl ether, was obtained from the sodium carbonate fraction, and chrysophanol from the sodium hydroxide fraction.

The Precipitated Material, KBLMNCDJ, which deposited from the ether solution during extraction in the Soxhlet apparatus, crystallized from glacial acetic acid in orange-red needles. This was the purest emodin obtained. It melted at 253°, its acetyl derivative at 195° and its dibenzoyl derivative at 224°.

3. The Chloroform and Ethyl Acetate extracts contained resinous material and traces of emodin, its methyl ether and chrysophanol. It was noticed that prolonged heating of the chloroform solution caused decomposition of the extractives.

E. Water-Soluble Hydrolyzed Resin, KBLM.—During concentration of this solution under diminished pressure the first portion of distillate was colored brown by a volatile substance which could be extracted with ether. Its odor was that of tanning extracts and its taste extremely bitter. It gradually resinified on standing so that nothing therein could be identified.

The concentrated filtrate yielded to ether a small amount of emodin and a few crystals of cinnamic acid. Rhamnose was identified in the clarified solution.

Discussion of Constituents.—The glucoside frangulin was found to agree in properties with that which has been previously described. It melted sharply at 229° and on hydrolysis with acid or emulsin yielded emodin and rhamnose. It is quite insoluble in cold ether and the other immiscible solvents, which accounts for its being found in the original alcoholic extract and not in subsequent fractions.

One molecule of emodin is apparently so linked with one of rhamnose as to allow two hydroxyls of the emodin to retain acidic properties. These groups are probably neutralized by other molecules in the plant in such a way as to form much larger complex primary glucosides to which the real purgative action is due. Neither pure frangulin nor the pure hydroxy-methy-anthraquinones has cathartic properties which are comparable with those of the drug.

Emodin, the principal hydroxy-anthraquinone present, is found in free and combined forms and agrees with the properties of that from cascara and *Rumex*

crispus. Its melting point, even when mixed with preparations from the other drugs, remained at 253°, with slight sublimation above 210°. The acetyl derivative melted at 197°, the dibenzoyl at 224° and the monobrom compound at 250°. As a trihydroxy-methyl-anthraquinone it is isomeric with morindone from Morinda citrifolia.

Chrysophanol, or chrysophanic acid, is found free and associated with emodin-monomethyl ether. It melts at 190° and forms an acetyl derivative melting at 204°. This agrees with other preparations obtained in this laboratory. Chrysophanol is probably present in both free and combined form in the bark.

Emodin-monomethyl ether while associated with the chrysophanol was not present in sufficient quantity to isolate. Its presence was easily demonstrated by the demethylating action of concentrated sulfuric acid.

Rhamnol, the phytosterol $C_{20}H_{31}O$ isolated from the unsaponified portion of the petroleum ether extract, is an alcohol of the quebrachol type. It is identical with that from cascara and Rumex.

The sugars isolated were rhamnose and xylose, the latter from hydrolysis of the woody tissue. The rhamnose was apparently present in glucosidic combination. It is identical with that obtained by hydrolysis of quercitrin.

IV. An Attempted Synthesis of Frangulin.—Rhamnose was prepared by the acid hydrolysis of quercitrin as described by Walton.[30] The quercitrin was contained in Lemon Flavin which was courteously furnished us by J. S. Young and Company of Hanover, Pa. The crystallized rhamnose was dissolved in acetic anhydride and saturated with gaseous hydrobromic acid in the presence of a few small globules of mercury. The product, which was a viscous liquid, was purified by solution in ether and precipitation with petroleum ether. It could not be crystallized.

Five grams of acetyl-brom-rhamnose were added to a mixture of four grams of pure emodin and 2.48 grams of potassium hydroxide dissolved in absolute alcohol. The solution had an odor of ethyl acetate after standing a short time, became deep brown in color and deposited a dark precipitate after refluxing on the steam-bath for one hour. The mixture after spontaneous evaporation was dissolved in a small amount of water and carefully neutralized with hydrochloric acid. Just enough alcohol was added to dissolve the brown precipitate and the mixture was digested on the steam-bath with the occasional addition of a little water. The brown precipitate which formed was filtered, washed and dried and extracted thoroughly with ether until the ether washings gave no test for anthraquinones. When this brown substance was shaken with water no test for carbohydrate could be obtained in the aqueous portion.

The compound could not be crystallized from alcohol and was insoluble in ether. It apparently decomposed at 220° with some sublimation and when mixed with frangulin from the bark the mixture melted at 224°. The substance had a bitter taste. When boiled with dilute hydrochloric acid and the solution shaken with ether the ether washings gave reactions for emodin and the aqueous liquid reactions for carbohydrates. This leads us to believe that a combination of glucosidic character had taken place with the formation of a substance akin to frangulin. This phase of the work is being continued at the present time.

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A NEW COLORIMETRIC DETERMINATION OF METHYL ALCOHOL.

BY A. B. LYONS.

In a comprehensive paper published in the *Journal of Industrial and Engineering Chemistry* last June, Robert M. Chapin describes a modification of the Denigès test for methyl in presence of ethyl alcohol, by which it is possible to determine colorimetrically with a fair degree of precision the proportion of the former. The author points out the fact that when alcoholic beverages are under consideration small quantities of formaldehyde may occur normally in the oxidized solution to which the test is applied so that the test is inconclusive unless it shows approximately the quantity of methyl alcohol it indicates. No limit is set by the author to the quantity which may be regarded as possibly "normal," but it seems unlikely that it can ever amount to as much as 1 percent of the original sample, if this be

an alcoholic beverage. The sophistication would hardly be profitable unless a much larger proportion were added.

We may note at this point that Chapin aims to determine the proportion of methyl alcohol, not in the sample as a whole, but in the total alcohol which it contains. If it is a whiskey containing by specific gravity determination 45 percent of "alcohol," and Chapin's test shows 2 percent of methyl alcohol, the sample contains in reality 0.9 percent of its volume of that liquid. It is to be assumed that by "Methanol" and "Ethyl Alcohol" Chapin means, respectively, CH_3OH and C_2H_5OH. For practical purposes would it not be better to take these terms as meaning, respectively, Columbian spirit and alcohol U. S. P.? At all events I shall do this in the present discussion.

In a study I have been making recently of a new modification of the Hehner test for formaldehyde in its application to the detection of methyl alcohol, I have endeavored to work out a practical colorimetric test for the approximate determination of wood spirit in distilled spirits and other alcoholic beverages. The problem has proved a baffling one, but a procedure has been formulated which serves a useful purpose, and which it is the object of this paper to report.

The new test substitutes for the milk originally described, or the peptone which is now commonly used in its place, dried egg albumen. The reasons for giving preference to the latter have been pointed out in a paper contributed to the JOURNAL OF THE AMERICAN PHARMACEUTICAL ASSOCIATION (January 1922). The procedure there described requires some modifications if quantitative results are sought. In the oxidation, it is well to employ essentially the method of Chapin, based as it is on an exhaustive study of the details involved. Phosphoric acid is substituted for sulphuric, the time allowed for the oxidation being extended to 30 minutes. Ethyl alcohol is present in the uniform proportion of 1 percent (vol.) of the solution to be oxidized. The small quantity of acetaldehyde formed does not affect noticeably the color which is to be taken as a measure of the quantity of methyl alcohol present in the sample.

In the new test, a highly dilute solution of methyl alcohol, containing also approximately 1 percent (vol.) of U. S. P. alcohol, is oxidized in the prescribed manner; of this oxidized solution, 1 cc is mixed with 1 cc of water containing 5 to 10 mg. of egg albumen and 2 cc of strong sulphuric acid containing a trace of ferric salt. A purple color develops rapidly in the hot mixture, reaching a maximum intensity within 10 minutes, and remaining thereafter unchanged (unless albumen has been added in excess) for several days.

The intensity of the color depends not alone on the quantity of formaldehyde present. Addition of water causes it to fade, and at a certain dilution to disappear entirely. Two solutions differing greatly in intensity of color but both containing the same percentage of sulphuric acid will require addition of the same quantity of water to cause decoloration, the color reappearing gradually if the acid strength of the solution is increased. Increase in the quantity of albumen deepens the purple tint, but an excess causes the solution to assume gradually a smoky hue. Color comparisons must therefore be made promptly—say, within 20 minutes after the mixtures have been made.

It is evident that, if any deductions are to be drawn from a colorimetric comparison of two solutions, the utmost care must be taken to treat the solutions in

exactly the same manner, particularly as to the quantity of albumen added and as to the proportion of acid present in the mixture.

The ferrated acid used in my tests was prepared by dissolving 30 mg. of ferric ammonium alum in 1 cc of distilled water and adding the solution to 100 cc of sulphuric acid, U. S. P. The C. P. acid used was stated to contain 0.00002 percent of "Fe," and without further addition of iron produced the characteristic purple color in intensity hardly inferior to that caused by the "ferrated" acid. Temperature plays an important part in the development of the color, so that the mixture of the acid with the aqueous solution must be made without delay, and the temperature of the solutions themselves before mixing must not vary many degrees from 20° C.

In bringing two of the colored solutions to a corresponding shade by diluting the stronger, it is essential that a mixture of strong sulphuric acid with an equal volume of water shall be used and such a mixture should be provided for this purpose.

The dried egg albumen should be kept for convenience in the form of a very fine powder and the solutions of it should be made as much as half an hour before they are used. It is best to use such solutions the day they are prepared.

Provide for the tests the following:

1. One percent alcohol. Mix 5 cc of alcohol U. S. P. with distilled water q. s. to make 500 cc.

2. A standard solution (0.002%) of methyl alcohol. Mix 5 cc of Columbian spirit with 1 percent alcohol q. s. to make 100 cc; of this mixture 1 cc is diluted with 1% alcohol to make 50 cc, and finally 1 cc of this mixture with 1% alcohol q. s. to make 50 cc.

3. "Dilute" phosphoric acid. Mix 20 cc of phosphoric acid, U. S. P., with distilled water q. s. to make 100 cc.

4. A three percent solution in distilled water of potassium permanganate.

5. A ten percent solution of oxalic acid in distilled water.

6. Sulphuric acid, ferrated. Dissolve 30 mg. of ferric ammonium alum in 0.5 cc of distilled water and add to 100 cc of strong sulphuric acid.

7. Sulphuric acid, half strength. Add gradually with constant stirring 50 cc of strong sulphuric acid to 50 cc of distilled water and let cool.

8. Solutions of dried egg albumen, respectively, 1:200 and 1:100. Dissolve 0.100 Gm. of dried egg albumen, respectively, in 20 and in 10 cc of distilled water.

ROUTINE PROCEDURE FOR MAKING THE TESTS.

1. Dilute the solution, previously purified by distillation, according to the requirements of the case.

2. Oxidize a portion of the dilute solution. Place in a small flask 4 cc of the solution. Add 1 cc of the "diluted" phosphoric acid and 2 cc of 3% potassium permanganate solution and let stand at room temperature 30 minutes. Then add 1 cc of 10% solution of oxalic acid and after 2 minutes strong sulphuric acid, drop by drop until the solution is decolorized (a little less than 1 cc) and make up the volume with water to exactly 10 cc.

3. Mix 1 cc of the oxidized solution with 1 cc of solution of egg albumen (1:200 or 1:100 as the case may be), then add 2 cc of ferrated sulphuric acid and mix immediately by shaking. (Take care that the solutions before mixing are at

room temperature.) A purple color develops quickly if methyl alcohol is present in a proportion greater than 1:50,000.

4. Prepare color standards by the foregoing procedure applied to a portion of the standard (0.002%) solution of Columbian spirit, using for No. 1 albumen solution 1:200, for No. 2 albumen solution 1:100.

Proceed now to a tentative test of the suspected liquor, presumably a distilled spirit. To 5 cc of the sample add 20 cc of water and distil off slowly 20 cc, making up the volume with distilled water to 100 cc. Mix well by shaking and dilute 1 cc of this mixture with 1 percent ethyl alcohol to make 25 cc, and of this dilute finally 1 cc to make 5 cc, making the total dilution 1:2500. Oxidize 4 cc of this mixture and test as above for methyl alcohol. If this proves to be present at all, it is likely that the color produced will be much stronger than that of the color standard (use preferably albumen solution 1:200, to compare with color standard No. 1).

Dilute now 1 cc of the "unknown" colored solution with half-strength sulphuric acid gradually added until the color matches that of color standard No. 1. Suppose that this has required addition of 3 cc of the acid, increasing the dilution factor four-fold. At 1:2500 correspondence in color with the standard would indicate 5 percent of methyl alcohol in the sample, since 50,000 : 2500 :: 100 : 5. A four-fold dilution will correspond then with $5 \times 4 = 20\%$, as an approximate figure. Confirm this conclusion by preparing an actual dilution from that first oxidized, which was equal to 1:2500, by adding to a portion of it three times its volume of 1% alcohol, oxidizing 4 cc of this and preparing colored solutions for comparison with color standards No. 1 and No. 2.

Bring these into correspondence as in the preliminary test, comparing color No. 1 with color standard No. 1, and color No. 2 with color standard No. 2. Deduce from the averages a new dilution factor, which will vary but little from that already found, using this to give the closest practicable approximation to the result sought. That which is essential is that strict attention be given to every detail of the tests wherever comparison of results is to be made. Such results in any case must be checked by other assay methods which do not depend on oxidation of methyl alcohol to formaldehyde.

A modification of the method above described consists in ascertaining experimentally the limit of dilution in the solutions to be compared at which a purplish color is developed. At the last only a single drop of the albumen solution 1:200 is to be used, the end-point being reasonably sharp. The percentage in all cases will be the same as that of the two dilutions at the vanishing point of purplish coloration. It will be well to find also the vanishing point for the color reaction with apomorphine which I find to be far preferable to that with morphine.

Results of a high degree of exactness are not to be expected for several reasons:

1. The oxidation process adopted does not convert the whole of the methyl alcohol to formaldehyde. We may assume that if the conditions are identical in two oxidations simultaneously carried out, the proportionate quantity of formaldehyde will be very nearly the same, and actual tests show that this is substantially the fact. Approximate results are all we can expect, but these give us information of real value.

2. Methyl alcohol is not the only compound which will yield formaldehyde by oxidation in the manner prescribed. Even ethyl alcohol may furnish a small quantity of this aldehyde. Certainly methyl esters may yield the same, and a number of the higher alcohols show a like behavior. Hence quantitative results require confirmation as has been already stated. Still, in general, it may be said that the indications of the test as applied to alcoholic beverages point to impurities likely to be not less harmful than wood spirit.

LABORATORY OF NELSON, BAKER & CO.,
MAY 1922.

PEPSIN—METHODS USED FOR ITS QUANTITATIVE ESTIMATION—ITS PERMANENCE AND EFFECTIVENESS IN SOME OF ITS PREPARATIONS.*

BY ELMER J. TRAUT† AND H. W. VAHLTEICH.

It is the intention of the authors to discuss the subject matter indicated by the above title as a continuation of a previous paper[1] from this laboratory.

In accordance with our earlier results with different methods of pepsin assay, we have made the U. S. P. method the basis for the work done on the various preparations which were assayed. It was found practical, however, to use modifications of the method whereby considerable time was saved and yet as satisfactory results attained as if official directions had been strictly adhered to. The first modification was made in the method of adding the 0.3% HCl solution. The U. S. P. IX directs that it be added in small increasing portions, finally using a portion to rinse the stirring rod. In our assays we added the entire amount of 35 cc at one time, and then, instead of disintegrating with a glass rod, simply shook each bottle a sufficient number of times until upon inspection the albumen was found to be as thoroughly disintegrated as if the U. S. P. IX directions had been followed.

Also it was found most desirable to run a number of controls containing the known with each batch of tubes. The strength of the known pepsin used in these control tubes was determined by running a considerable number (150 or more) of determinations on it, following the U. S. P. IX method. This, then, was our control and solutions of it were prepared each time that we ran an unknown, the fourth, eighth, sixteenth, etc., bottles in the bath containing the known pepsin. At the end of the digestion period the digestion mixtures were poured into the sedimentation tubes and the amount of the residue in cc noted upon standing one-half hour. However, instead of considering a 1-cc residue as the basis for computing the strength of the unknown pepsin, we used the average of the residues in the tubes from the known pepsin. In our estimation this is a permissible modification in an investigation of this nature. The principle is essentially the same as for the comparative method outlined in our previous work and is intended to eliminate variations due to the variations in the composition and texture of the coagulated albumen, with which every manipulator of this method is familiar.

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† Work done as holder of Stearns Fellowship for 1921–22, in partial fulfilment of the requirements for the degree of Master of Science.

[1] JOUR. A. PH. A., 10, 595, 1921.

Avoidance of undue exposure to air and thorough mechanical mixing when large batches of albumen (200 to 300 grams) are being worked with, are also essential precautions.

The comparative method can also be applied to the use of commercial egg albumen as a substrate to supplant hens' egg albumen. There are commonly found on the market two kinds of egg albumen, the one a powder, labeled "soluble" and usually put up in original containers of various sizes; the other, in the form of chips, obtainable in any quantity in bulk. Of these two, the latter is the more desirable for the assay of pepsin, because the former, though labeled "soluble," is difficult to get into solution. The chips (said to be dried duck egg albumen imported from China) are more easily soluble and give a more homogeneous solution. A procedure found satisfactory is as follows:

Into a large porcelain evaporating dish are placed 100 Gm. (1 part) of chip albumen, and 300 cc (3 parts) distilled water poured upon it. It is stirred occasionally or allowed to stand over night and kept covered (in a cool place in warm weather). Solution being complete, it is poured into any type of flat vessel such as a good-sized crystallizing dish, preferably into a single dish large enough to hold it all, in a layer one and one-half to two centimeters deep (not over 2 cm. deep). The rate of coagulation and the uniformity of the coagulated mass is dependent upon the thickness of the walls of the vessel and also upon the depth of the layer of liquid. Large thin-walled crystallizing dishes are admirably suited for the purpose and a layer not over 2 cm. deep gives good results. The dish containing the solution is placed in a water-bath and its bottom supported by three or four small metal supports resting upon the bath. Thus heat is transmitted to the solution over the comparatively large area exposed to the bottom of the dish in the water. The dish is covered by a suitable glass plate and a temperature of 80° to 85° maintained until the mass has coagulated to the consistency of ordinary hard-boiled egg white, 30 to 45 minutes usually being required. It is well to occasionally remove condensed moisture from the covering plate.

The coagulated mass is passed through a No. 40 sieve in the usual (U. S. P. IX) manner. If two or more batches are coagulated separately they should be mixed well after sieving to assure uniformity. In running pepsin determinations only $6^2/_3$ Gm. of this sieved material are necessary instead of the 10 Gm. of egg albumen usually used for each bottle run. A solution of a known strength of pepsin is also made up and 5 or more control tubes containing this solution are run side by side with the unknowns. It is not necessary to run the digestion with this albumen longer than 2 hours, and it seems from our experience that $1^1/_2$ hours may also be sufficient to give reliable results. This may be due to the fact that this substrate is more uniform, as a rule, than that obtainable from storage eggs, and that after being passed through a No. 40 sieve it is much more readily suspended in $N/12$ HCl than the latter.

As a substrate to replace storage egg albumen in the comparative method its advantages may be summed up as follows:

1. Even when storage eggs are low in price the cost of albumen alone per bottle run is one-half or less of the cost of usual hens' egg albumen.

2. It entirely eliminates using a stirring rod to disintegrate the albumen since

it rapidly suspends itself uniformly by shaking the bottle once or twice (absence of membranous material).

3. It gives more consistent results in less time for digestion.

Its principal disadvantage is that it requires additional (though simple) apparatus, and labor.

The possibility of pepsin assay by the milk-curdling process has been brought to our attention by one of the manufacturers.[1] Several investigations have been carried out in an effort to determine the possible identity of pepsin and rennin.[2,3,4] For the purposes of our work, however, it was of interest especially to determine whether the proteolytic activity of pepsin paralleled its milk-curdling power, and under what conditions.

Our procedure included the following:

Solutions:

1. 0.1 Gm. of known pepsin (determined by U. S. P. assay) in 150 cc of distilled water.
2. 0.1 Gm. of unknown pepsin in 150 cc of distilled water.
3. Fresh skimmed milk.
4. Lactic acid (88%) and hydrochloric acid (36%).

Apparatus:

1. Thermostat regulated to 35° C., preferably with black interior and suitable illumination to facilitate the determination of the end-point.
2. Two wide-mouthed 250-cc bottles.
3. Two stop watches.
4. Two 150 cc beakers.
5. Measuring flask.

METHOD.

The milk used in this laboratory was pasteurized and about one day old, although investigations have shown that milk not pasteurized is more susceptible to coagulation by pepsin.[5] The milk is brought to 35° C. and made up to the proper acidity by the addition of two minims (0.10 cc) of lactic acid and one minim (0.05 cc) of hydrochloric acid[6] to each 700 cc of milk, these amounts having been found adequate. The acidity of the original milk was taken by means of a Leeds and Northrup student potentiometer and the p_H value found to be 6.4. The original milk is therefore only slightly acid—almost imperceptibly so. Similar results are shown by Wendt.[6]

Into one of the two wide-mouthed bottles of 250 cc capacity are placed 5 cc of the known solution of pepsin (Solution No. 1) and into the other are placed 5 cc of the unknown solution (Solution No. 2). The two bottles are then placed in the constant temperature bath. Two 100-cc portions of the adjusted milk are poured into suitable containers. One of these is added to the 5 cc of known pepsin solution and the time of addition recorded with a stop watch, the two are thoroughly mixed, and then the other 100 cc are added to the 5 cc of unknown pepsin solution

[1] Mr. H. M. Adams of Frederick Stearns & Co., Detroit, Mich.

[2] Hammarsten, *Zeit. physiol. Chem.*, 56 18–185.

[3] Effront-Prescott, "Biochemical Catalysts," 181–185, 204.

[4] *Zeit. physiol. Chem.*, 74, 242, 1911.

[5] *Fermentforschung*, 3, 81–192, 1920.

[6] Leach, "Food Inspection and Analysis," 4th Ed., 142, 1033.

and the time of addition again noted. The end-point of curdling is obtained by gently tipping the container in the bath at 35° at short intervals and watching the side which has been wet by the milk. When curdling begins an easily perceptible stringy precipitate will cling to the wall of the bottle and the time of its first appearance is taken as the end-point. Two stop watches, one for each solution, are the most practical, for the end-point is sharp and can be caught to the second or less. The strength of the pepsin may be given in the same terms as the present U. S. P. method, since a standard known pepsin is used with each assay. For instance, supposing we had:

Standard 1–3000—5 cc of dilution curdled in 4 min.
Sample ? 5 cc of dilution curdled in 3 min.
4/3 of 3000 = 1–4000 pepsin.

The unknown is then checked in the same way as the U. S. P. assay method, *i. e.*, the results as above show 1–4000, then 15000/4000 = 3.75 cc instead of 5 cc should be used and this quantity should curdle the milk in the same time as 5 cc of the standard 1/3000 pepsin does.

TABLE.

	Date.	Time of curdling.	Strength milk by method.	Strength by U. S. P. method.
Elix. Lact. Pepsin No. 1	4/19/22	243 seconds	1–2404	1–2400
Standard		208 "		
	6/15/22	466 "	1–2414	1–2400
		375 "		
Elix. Lact. Pepsin No. 2	4/19/22	257 "	1–2179	1–2300
Standard		200 "		
	6/15/22	430 "	1–2225	1–2300
		319 "		
Elix. Lact. Pepsin No. 3	4/19/22	240 "	1–2368	1–2300
Standard		203 "		
	6/15/22	427 "	1–2114	1–2300
		301 "		
Elix. Lact. Pepsin No. 4	4/19/22	230 "	1–2532	1–2500
Standard		208 "		
	6/15/22	402 "	1–2462	1–2500
		330 "		
Elix. Pepsin & Iron No. 1	4/19/22	738 "	1–1800	1–1800
Standard		476 "		
	6/15/22	646 "	1–1762	1–1800
		380 "		
Elix. Pepsin & Iron No. 2	4/19/22	708 "	1–1641	1–1700
Standard		415 "		
	6/15/22	744 "	1–1645	1–1700
		375 "		
Elix. Pepsin & Iron No. 3	4/19/22	630 "	1–1781	1–1700
Standard		401 "		
	6/15/22	639 "	1–1685	1–1700
		359 "		
Elix. Pepsin & Iron No. 4	4/19/22	640 "	1–1754	1–1800
Standard		401 "		
	6/15/22	624 "	1–1762	1–1800
		367 "		

DISCUSSION.

The method has been tried on various preparations made up in this laboratory and the results obtained seem to merit consideration. It cannot as yet be accepted as a standard but it is a very good approximation of what the U. S. P. assay results will be, some determinations showing identical results. The preceding data were obtained in the laboratory with Elixir Digestive Compound, N. F. III and Elixir Pepsin and Iron, N. F. IV. The basis for numbering the preparations was as follows:

No. I contained Aromatic Elixir made up according to U. S. P. IX.

No. II contained Aromatic Elixir with the alcohol replaced by glycerin and the sugar by saccharin.

No. III contained Aromatic Elixir with sugar replaced by saccharin.

No. IV contained Aromatic Elixir with alcohol replaced by glycerin.

The figures in the table show that the results of the method are well within the range of error of the U. S. P. method and show a relationship between the proteolytic strength of the pepsin and the time of curdling. It will be noted that the time of curdling for the standard varies, but in these experiments the milk was made up at various times and each batch had a slightly different time of curdling. Why it should vary for different batches when the same quantity of milk is used each time with the same addition of hydrochloric and lactic acids has not been determined. The fact that a control is run each time eliminates the possibility of error. The method has been found practical only in preparations which contain pepsin in concentrations of one gram per 100 cc of 1–3000 pepsin or higher, pepsin of lower strength at times has not coagulated even after 30 minutes. Thus the above results on Elixir Pepsin and Iron N. F. IV are good, considering that the pepsin in this preparation is below the above-mentioned concentration. Many other results obtained, but not listed here, were far more variable. This would eliminate this method as an accurate one for weaker pepsin preparations but still would answer the purpose of the manufacturers whose pepsin ranges from 1–3000 and up. The addition of the acids in such small amounts had no marked effect on the acidity of the preparation as determined by the potentiometer apparatus, but the pepsin did curdle the milk which it had not previously done on the original milk.[1] Again, instead of adding one minim of hydrochloric acid, three minims and more of lactic acid were added. Then no curdling resulted. The acidity of milk changes upon standing and the time of coagulation is shortened, so that it is best to make up only one liter or two at a time and use it at once. The time for coagulation should be between 5 and 6 minutes for the standard, and the concentration of lactic and hydrochloric acid in 700 cc of milk as used here approximates that time. In fact a more rapid curdling makes the method less accurate.

As a summary the following can be said:

1. Our results indicate that, under certain conditions of temperature and acidity, the proteolytic and the milk-curdling powers of pepsin are parallel and that the latter can be used to advantage in its assay.

2. The method is a good approximation and affords a rapid assay for the manufacturer who desires to know to a fair degree of accuracy the strength of his pepsin and does not care to spend considerable time with the U. S. P. assay.

[1] *J. Dairy Science*, 2482–6, 1919.

3. It is a rapid method, requires little time, and is less costly from a standpoint of apparatus and cost of milk as compared to the apparatus and fresh eggs required to determine the strength of pepsin and its preparation.

4. It is not applicable to preparations containing rennin, owing to the high curdling power of rennin.

5. It necessitates the preparation of a standard by the U. S. P. method, no method as yet being devised whereby that can be eliminated.

DETERIORATION OF PEPSIN IN ITS PREPARATIONS.

Experiments have shown that preparations of pepsin show more or less deterioration after being made up. The question as to why these preparations should deteriorate, some more rapidly than others, has caused many investigations and to this matter also the writers have been devoting their time. E. Buchner[1] pointed out that cane sugar was an inhibitant and we find a similar statement by Euler[2] in regard to alcohol above a certain concentration. On the assumption that these might be two of the chief causes, a number of preparations of pepsin were made up, namely, Elixir Pepsin, N. F. IV, Elixir Pepsin and Iron N. F. IV and Elixir Digestive Compound, N. F. III. Aromatic Elixir for the above was made up four different ways as mentioned in the discussion of the milk method above. First, strictly U. S. P.; second, substituting glycerin for the alcohol; third, saccharin for the sugar; and fourth, saccharin for the sugar and glycerin for the alcohol. The U. S. P. syrup calls for 850 grams of sugar and sufficient water to make 1000 cc of finished syrup. Saccharin, 1/350 of the total amount of sugar, was used and water added to make 1000 cc, and this was then the saccharin syrup used in the aromatic elixir incorporated in the preparations wherein saccharin was substituted. The preparations for each elixir were four in number: namely, one with Aromatic Elixir, U. S. P.; another with Aromatic Elixir containing saccharin and alcohol; another, saccharin and glycerin; and the fourth, syrup and glycerin. These preparations were then assayed at monthly intervals over a period of seven months.

Results show that the preparations containing saccharin for sugar in the Aromatic Elixir deteriorate even more rapidly than those made up with Aromatic Elixir U. S. P., which is in keeping with a statement previously made, that the addition of saccharin has no favorable effect in a hydrochloric acid and pepsin mixture unless the pepsin is present in excessive amounts.[3] The substitution of only glycerin for alcohol and not saccharin for sugar has practically no effect on stability. Our preparation with this substitution kept just a trifle better than the official one.

We find in the literature a great deal about so-called "activators and paralyzers" of pepsin in its preparations. Effront[4] and Euler[5] make mention of alkaloids, salts, and organic compounds as stabilizers, and it was with these suggestions that caffeine, boric acid and iodoform were used and their effect noted in the course of seven months. A quantity of Essence of Pepsin N. F. IV was prepared and divided into 250-cc portions. In one was placed caffeine in a concen-

[1] E. Buchner, *Ber.*, 30, 1, 1110, 1897.

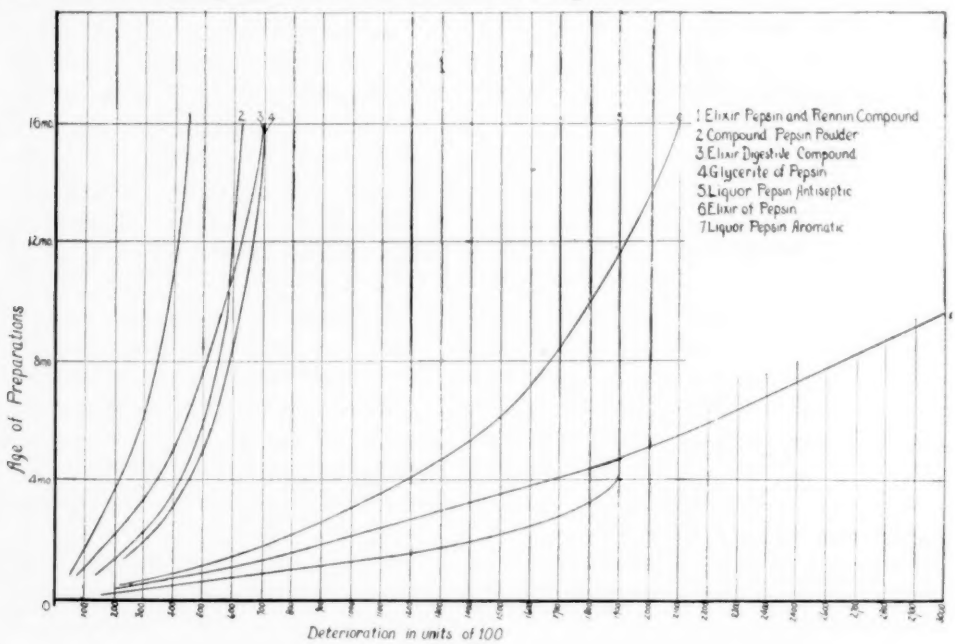
[2] Euler-Pope, "General Chemistry of Enzymes," 121.

[3] *Arch. Med. Exp.*, 19, 497–504.

[4] "Effront-Prescott, "Biochemical Catalysts," 181–185, 204.

[5] "Euler-Pope, "General Chemistry of Enzymes," 121.

tration of 0.1 Gm. to 100 cc of Essence of Pepsin; boric acid 0.12 Gm. per 100 cc; iodoform, 0.05 Gm. per 100 cc of Essence. (Little attention was paid at this time as to whether the amounts were large enough for therapeutic effect, it being simply a trial for observing the keeping properties of any of the pepsin preparations containing the different-named ingredients.) These preparations and also that of Essence of Pepsin N. F. IV without preservatives were assayed over a period of seven months; it was found that although the Essence of Pepsin without preservatives dropped in peptic activity to 1–2700, the others remained 1–3000. Also a series of concentrations of caffeine in Essence of Pepsin were prepared as follows: 0.05 Gm. per 100 cc; 0.034 Gm. per 100 cc; 0.017 Gm. per 100 cc; 0.0085 Gm. per 100 cc and 0.00425 Gm. per 100 cc and assays run at monthly intervals over a period of four months. It was found that there was no dropping off of peptic activity in any of these, not even the one containing 0.00425 Gm. per 100 cc which is an amount so small that the therapeutic effect would be negligible. Likewise the boric acid in the one preparation is present in an amount which would have no therapeutic effect. Four doses a day of 1 fluiddrachm of this Essence of Pepsin would mean the taking of 0.57 grain of boric acid per day. All the preparations remained clear and showed no evidence of precipitate. Their taste was not affected; if anything, the one containing the iodoform seemed more palatable.


1 Elixir Pepsin and Rennin Compound
2 Compound Pepsin Powder
3 Elixir Digestive Compound
4 Glycerite of Pepsin
5 Liquor Pepsin Antiseptic
6 Elixir of Pepsin
7 Liquor Pepsin Aromatic
Age of Preparations
Deterioration in units of 100

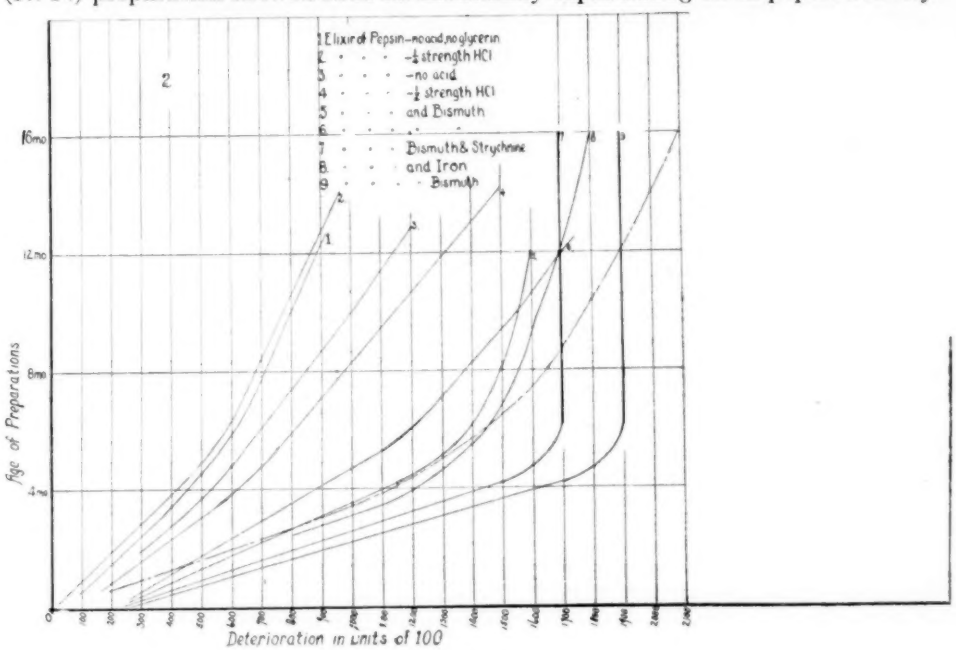
Graph 1.

Graphs 1 and 2 include most of the official (N. F.) pepsin preparations in use as medicaments, besides other special combinations, the same preparations on which a previous paper[1] presented data for a 6-month interval. They were assayed as described at that time. It is interesting to note that many of the preparations show very slow deterioration after 6 or 8 months. This seems to be especially

[1] Jour. A. Ph. A., 10, 595, 1921.

striking in those of the bismuth-pepsin combination which dropped off rapidly in peptic activity for the first six or eight months and have since remained constant. All four of the bismuth-pepsin elixirs (Graph 2), for which curves are presented, were made up according to the N. F. IV directions and hence are identical except for the addition of strychnine to the one of them. The purpose of recording data on all four of these elixirs was to get checks and to show that the results were duplicable within reasonable limits. It will be noticed that these four and the iron elixir run fairly parallel (Graph 2).

Liquor Pepsini Aromatici showed no noticeable peptic activity when assayed by the U. S. P. IX method less than a year after it was made. No other official (N. F.) preparation showed such an abnormally rapid falling off in peptic activity.


2
1 Elixir of Pepsin—no acid, no glycerin
2 · · · · —½ strength HCl
3 · · · · —no acid
4 · · · · —½ strength HCl
5 · · · · and Bismuth
6 · · · · · ·
7 · · · · Bismuth & Strychnine
8 · · · · and Iron
9 · · · · Bismuth
16mo
12mo
8mo
4mo
Age of Preparations
Deterioration in Units of 100

Graph 2.

Elixir Pepsin and Rennin Compound, N. F. IV, also commonly known as Essence of Pepsin, maintains its peptic activity unusually well. Several commercial preparations, described by their makers as of this type, were also assayed periodically and with one exception held their activity equally well. Pulvis Pepsini Compositus is an N. F. III preparation, and a powder of similar composition compressed into tablets is frequently prepared by manufacturing pharmacists. Pepsin in this dry combination seems to retain its activity quite well. Elixir Digestive Compound, also commonly known as Elixir Lactated Pepsin, though rapidly losing its diastasic value, retains its peptic activity comparatively well. Glycerite of Pepsin, used mostly as an ingredient in other preparations, is another preparation which stands up well. These four preparations are seemingly in a class by themselves with respect to the manner in which they retain their peptic activity.

Elixir of Pepsin was made up in several combinations, as designated in Graph 2. It is interesting to note that a preparation made up with only one-half as

much HCl as the official preparation retained its peptic activity much better than did the latter; similarly, in regard to the two elixirs made up with no acid at all, the one with glycerin, the other without it. The broken line curve of Graph 2 is a duplicate of Curve 6 of Graph 1 (Elixir of Pepsin), inserted to facilitate comparison.

Deterioration of the activity of pepsin in these combinations may be due to the action of the other ingredients. The action of various substances as inhibitors and paralyzers of enzymic activity has been the source of considerable interest and discussion in the past. In a previous paper[1] it was pointed out that Elixir of Pepsin, made up with only one-fourth as much HCl as the official preparation, retained its activity much better than the latter. The curve for this one-fourth strength HCl preparation is shown for a 14-month period as No. 2 on Graph 2. It is practically on a par with the similar preparation containing no added acid whatever, for retaining its peptic activity. A study of the relation of the p_H values of these preparations to their keeping qualities is interesting. Thus we get the following data:

Preparation.	E.	p_H.	C_H.
Elixir of Pepsin—no acid	0.548	4.485	2.91×10^{-5}
Elixir of Pepsin—{no acid, no glycerin}	0.537	4.35	4.47×10^{-5}
Elixir of Pepsin—1/4 HCl	0.481	3.35	4.47×10^{-4}
Elixir of Pepsin—1/2 HCl	0.435	2.58	2.63×10^{-3}
Elixir of Pepsin—N. F. IV (1 HCl)	0.387	1.760	1.74×10^{-2}
Elixir of Pepsin—1 1/2 HCl	0.353	1.185	6.57×10^{-2}
Elixir of Pepsin—2 HCl	0.340	0.964	1.085×10^{-1}
Elixir of Pepsin & Rennin Compound	0.500	3.67	2.14×10^{-4}
Elixir Digestive Compound (N. F. III)	0.475	3.25	5.62×10^{-4}
Glycerite of Pepsin	0.454	2.89	1.29×10^{-3}
Elixir of Pepsin & Iron, N. F. IV	0.380	1.728	1.708×10^{-2}

Also, the acidity of the U. S. P. IX digestion mixture, made up with 0.30% HCl, after 1/2 hour at 52° and before the addition of any pepsin, is about 0.08% HCl by titration with $N/10$ KOH, using alizarine sulphonate as indicator, remaining practically constant throughout the digestion as indicated by the following data:

($N/10$ KOH Required for 10 Cc of the Digestion Mixture.)

Bottle No.	1 After 30 min. at 52°.	2 After 1/2 hr. dign.	3 After 1 hr. dign.	4 After 1 1/2 hrs. dign.	5 After 2 hrs. dign.	6 After 2 1/2 hrs. dign.
1	2.20	2.50	2.45	2.40	2.30	2.30
4	2.00	2.30	2.30	2.25	2.25	2.25
15	2.00	2.20	2.20	2.15	2.20	2.20
16	2.10	2.30	2.25	2.25	2.20	2.20
37	2.10	2.30	2.30	2.25	2.25	2.20
48	2.30	2.50	2.40	2.30	2.30	2.25

Ten cc of 0.30% HCl used in the digestion mixture required for neutralization 8.40 cc of $N/10$ KOH. After 1/2 hour at 52° in contact with the egg albumen, this dropped, as is shown in Column 1, to 2.10 cc, corresponding to about 0.08% titrable HCl. Then 5 cc of a solution of 0.1 Gm. pepsin in 150 cc of 0.30% HCl were added, and digestion begun. This addition accounts for the slight increase

[1] Jour. A. Ph. A., 10, 595, 1921.

in KOH required as shown in Column 2 and subsequent columns. The titrable acidity remains practically constant throughout the digestion.[1] Starting with both higher and lower concentrations of HCl than 0.30% gives higher residues in the sedimentation tubes, thus indicating that the 0.30% of HCl solution is optimum, although the albumen present brings the concentration down to about 0.08% HCl, which is optimum for the digestion at 52° with this substrate.

These data indicate that the digestion by pepsin in the U. S. P. IX assay method proceeds in a medium of about 0.08% titrable HCl, and that for preparations of the Elixir of Pepsin, N. F. IV type, including Elixir of Pepsin and Rennin Compound and Elixir Digestive Compound, an acidity of from 0.00% to 0.08% HCl is optimum for the retention of their peptic value. It also seems, when the hydrogen-ion concentration and superior keeping qualities of Glycerite of Pepsin are observed, that the medicinal pepsin preparations may be divided into three classes:

(1) Those of the type of Elixir of Pepsin N. F. IV, essentially preparations of pepsin in an aromatic elixir vehicle.

(2) Glycerite of Pepsin, which may be put in a class by itself because of its unusually high content of pepsin and glycerin, without any alcohol or sugar.

(3) All other pepsin elixirs and solutions consisting of pepsin in various combinations in which inhibitors or paralyzers are used for other added effects besides peptic value, *e. g.*, preparations containing aromatics, antiseptics, metals, etc.

In preparations of the first type it seems that those containing from 0.00% to about 0.10% added HCl, ranging in C_H^+ between 4.50×10^{-4} and 3.00×10^{-5} (approximately), retain their activity better than those of a higher HCl content. This is in agreement with the results obtained for the titrable acid content of the U. S. P. digestion mixture, and with the results of Jul. Schütz.[2]

In making Glycerite of Pepsin about 0.30% of its content of HCl is used. Still, the preparation made here 18 months ago showed a comparatively low acidity. A preparation of more recent manufacture, 4 months old, showed a similar emf. whereas, from the amount of acid added in its manufacture, the glycerite should have an emf. slightly below that of the N. F. IV Elixir of Pepsin. This can be explained by assuming that the HCl in the Glycerite is held in combination by the large amount of pepsin it contains (five times that of any other pepsin preparation) or that the large amount of glycerin present may reduce the hydrogen-ion concentration, either of which is a reasonable assumption.

In the third type of preparations, deterioration may be attributed to the ingredients added for secondary purposes, and which are known to be pepsin "paralyzers."

These data indicate that it is advisable to reduce the added HCl of Elixir of Pepsin by three-fourths or more, of the amount used at present, that the added HCl of Elixir Pepsin and Rennin Compound and of Elixir Digestive Compound be kept about the same or reduced slightly, and that the added HCl of the Glycerite of Pepsin might also be reduced slightly.

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[1] H. T. Graber, JOUR. A. PH. A., July 1921.

[2] Jul. Schütz, *Wiener klin. Wochenschrift*, 20, 1361, 1907.

We take pleasure in acknowledging at this point our indebtedness to Messrs. W. H. Blome and Mortimer Bye of the Frederick Stearns Company's laboratories for their helpful suggestions and interest in our work.

FOOD AND DRUG LABORATORY,
COLLEGE OF PHARMACY,
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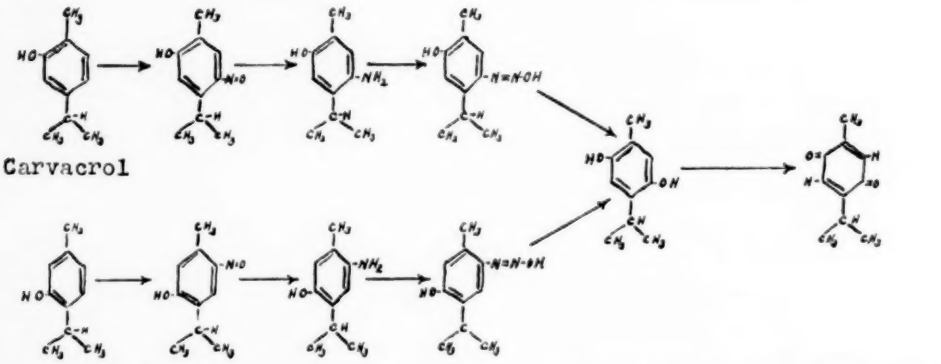
MISCELLANEOUS CHEMICAL PAPERS.*

PRODUCTION OF THYMOQUINONE ON A SEMI-COMMERCIAL SCALE IN THE LABORATORY.**

BY RALPH M. HIXON.***

A modification of the Liebermann-Illinski method[1] of preparing thymoquinone was developed in this laboratory,[2] whereby a yield of 90–93% of the theoretical amount of thymoquinone could be obtained from thymol. This reaction has now been tried on a larger scale (500-Gm. batches) with the object of ascertaining the feasibility of these proportions for the commercial production of thymoquinone from thymol or carvacrol.

The reaction can be expressed by the following series of intermediate products of which only the nitroso compound and the amine are actually isolated in the process:



The details of the method for the preparation of thymoquinone as originally developed in this laboratory were given as follows:[2]

"Dissolve 5 grams of thymol in 25 cc of 95 p. c. alcohol and add 25 cc of concentrated hydrochloric acid. Place this solution in a freezing mixture and add gradually, with constant stirring, crystals of sodium nitrite till 5 grams have been added. The solution at first becomes light green, then dark green, and, after a few minutes, solidifies to a bluish mass. Transfer this to a beaker containing about a liter of cold water and stir until the product becomes light yellow and fluffy in appearance. Wash this product with cold water and use it for the preparation of thymoquinone while still moist. Yield of nitrosothymol about 6 grams.

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* From the Laboratory of Edward Kremers.

** This communication is a portion of a thesis submitted at the University of Wisconsin in partial fulfilment of the requirements for the degree of Doctor of Philosophy.

*** Fritzsche Brothers Fellow.

"It is very necessary that the bluish mass be added to a correspondingly large volume of cold water and stirred till soft and light, and pale yellow in color, especially when large quantities (50 grams or more) of thymol are used; otherwise brownish lumps will form that will not go into solution and the yield of thymoquinone will be materially lessened. A soft, pale yellow nitroso compound means almost invariably a good yield of thymoquinone.

"Dissolve the nitroso compound in about 300 cc of 10 p. c. ammonia, with constant stirring, allowing each part to dissolve before more is added. Filter and pass in sulphuretted hydrogen until the amino compound is all precipitated. Filter rapidly on a force filter, keeping a layer of water above the precipitate while filtering and washing to prevent oxidation by contact with the air.

"Dissolve the amino compound quickly in an excess of 5 p. c. sulphuric acid (about 200 cc). Add gradually crystals of sodium nitrite till about 8 grams have been added, shaking vigorously after each addition. Heat on a water-bath, to about 60°, shaking occasionally till most of the gas has passed off. Distil with steam and separate out the thymoquinone.

"It requires several hours to prepare thymoquinone by this method. When necessary to allow it to stand over night, it was found that the best results were obtained by leaving it either in the ammonia solution or just before distilling, after adding the sodium nitrite. If proper precautions are observed an excellent yield and a pure product are obtained."

In working with thymoquinone derivatives this year, a large supply of the quinone was desired. It was found, however, that the supply of thymol was practically exhausted whereas considerable carvacrol[3] had accumulated in the laboratory. Carvacrol had been substituted for thymol in the production of small quantities of thymoquinone according to the above process and had been found to give satisfactory yields although no figures were available as to the exact percentage. It was accordingly used in a 200-Gm. batch and was found to yield 163 grams of thymoquinone which represents 75% of the theoretical.

In a later experiment (see p. 698 for technic), 500 grams of carvacrol yielded 560 grams of nitrosocarvacrol, which was converted into 390 grams of thymoquinone. This represents 93% of the theoretical yield of nitrosocarvacrol and 71% of the theoretical for thymoquinone. If the calculation of the percentage yield of thymoquinone is based on the yield of nitroso compound, it is only increased to 77% of the theoretical. Since no tar is encountered at any step of this reaction, we are obliged to attribute the decreased yield to greater solubility of the amine or else to incomplete reduction of the nitroso compound under the conditions used. It should be pointed out that the details of this method were worked out for thymol, not for carvacrol, and such a possibility is not unlikely. The aminocarvacrol is apparently more stable than the aminothymol. It seems probable that carvacrol would be a more suitable substance for the production of thymoquinone on a commercial scale than would thymol when the exact proportions were worked out for maximum yield. It may be added that, although carvacrol prices are not quoted on the open market and when these prices are given they range above those of thymol in value, it can be obtained from *Monarda fistulosa* quite as easily and cheaply as thymol can be obtained from *Monarda punctata*.

It was indicated above that 90–93% of the theoretical amount of thymoquinone has been obtained from thymol when working on a small scale. In working on a larger scale the yield was only 80% (500 Gm. thymol giving 430 Gm. of thymoquinone), but a part of this loss can be directly ascribed to the unexpected difficulty encountered in handling the nitroso reaction mixture on this scale. This reaction was carried out in a 10-kilo calcium chloride jar (see step 1); as the reaction approaches completion a thick mush of nitrosothymol is formed. (The nitroso-

thymol reaction mixture is more solid than is the nitrosocarvacrol reaction mixture.) The evolution of oxides of nitrogen from the nitrous acid causes the volume of this reaction mixture to increase 2 to 3 times. The jar used was not large enough for this increase in volume and it was necessary to stop the reaction by dumping into water before all of the sodium nitrite had been added. The skill gained by repetition of this reaction would undoubtedly enable the operator to at least equal the percentage yield obtained in the laboratory.

Fig. 1.

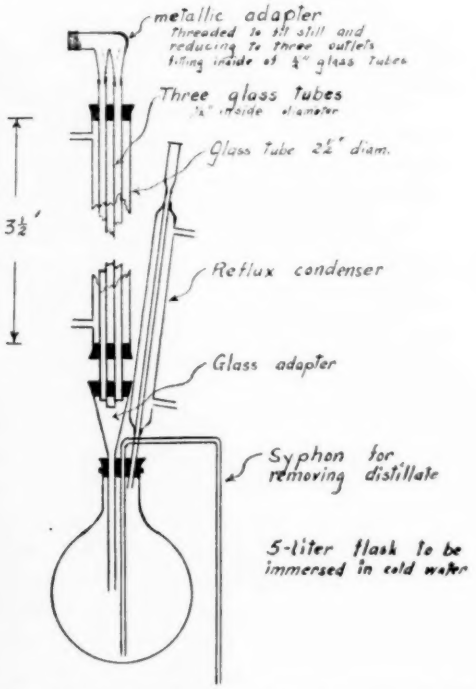
metallic adapter
Threaded to fit still and reducing to three outlets fitting inside of ¼" glass tubes
Three glass tubes
¼" inside diameter
Glass tube 2½" diam.
3½'
Reflux condenser
Glass adapter
Syphon for removing distillate
5-liter flask to be immersed in cold water

Fig. 2.—Structure of condenser recommended for the distillation of thymoquinone in the 60-liter still shown in Fig. 1.

The following details for the handling of these quantities of materials and the time required for each step are included for the convenience of laboratory workers:

1. Dissolve 500 grams thymol or carvacrol in 2.5 liters alcohol; add 2.5 liters concentrated hydrochloric acid; keep the temperature between 0–10° and add powdered sodium nitrite, slowly stirring with a stout wooden paddle. A 10-kilo calcium chloride jar surrounded by a salt-ice mixture in a 10-gallon crock was used in the experiments described above. (These two earthenware vessels with the paddle used for stirring the reaction mixture are shown in the background of the photograph, Fig. 1). This jar is too small for the thymol reaction mixture but is of convenient size for the carvacrol reaction. Time required for the addition of the sodium nitrite was approximately 1 hour; allow reaction mixture to stand ½ hour with frequent stirring in order to complete reaction.

2. Pour the reaction mixture slowly into 100 liters of water with brisk stirring. This step is very important for, unless the nitroso compound is washed carefully, it will separate as hard brown lumps which will form a brown tar with the ammonium hydroxide used in the next step. For this operation, three 10-gallon jars will be found convenient utensils. Time, ¾ hour; allow to stand ½ hour to facilitate filtration.

3. Filter off the nitroso compound. This step involves the handling of 100 liters of liquor from which a flocculent precipitate is obtained which reduces to a volume of about 2 liters. This was accomplished quite rapidly with a water pump by fitting a 10-inch Büchner funnel by means of Gooch crucible tubing to the mouth of an aspirating bottle from which a large tube led to a carboy which in turn was connected to the water pump. (See Fig. 1.) The mouth of a carboy will be found to be too small to allow the direct insertion of a Büchner funnel and exhaust tube. Time required, $^3/_4$ hour.

4. Mix nitroso compound with enough water, about 5 liters, to give a thick paste and pour slowly, with frequent shaking, into a carboy containing 10 liters of concentrated ammonia plus 15 liters of water. This gives a total of 30 liters of approximately 10% ammonia containing the nitroso compound in solution from which a small amount of tar separates. The tar must be filtered off; this can be rapidly accomplished with the filter described in step 3, but the precaution of a strong draft of fresh air must be supplied to eliminate the fumes. Time required, 1 hour.

5. Pass H_2S gas into the ammoniacal solution until the nitroso compound is completely reduced to the amine. The end of the reaction can be easily detected by the change in color of the solution (solution changes from a non-transparent brownish red to a clear yellow) and by the fact that no more amine precipitates with additional gas. A large Kipp was used to generate the hydrogen sulfide. The gas was allowed to flow as rapidly as it could be generated, the precaution being taken to insert a combined wash bottle and safety valve to prevent sucking back or mechanical contamination. Time required, about 3 hours.

6. Filter off amine and wash, keeping level of water always above the precipitate to prevent decomposition. Operation same as step 4. Time required, $^1/_2$ hour.

7. Dissolve the amine as quickly as possible in 20 liters of 5% H_2SO_4. Filter. Time required, $^1/_2$ hour.

8. Diazotize in a carboy, by adding slowly with frequent shaking, about 800 grams sodium nitrite. Allow reaction mixture to stand over night so that the greater portion of the gases have been evolved before the distillation. It will be observed that diazotization gives the hydrothymoquinone, but an excess of sodium nitrite has been used which oxidizes the hydrothymoquinone to thymoquinone.

9. Drive off the thymoquinone by steam distillation. This operation requires careful control of the temperature of the condenser for thymoquinone solidifies at 45°, while the molten substance is highly volatile. The condensing system shown in the photograph (Fig. 1) was found to give satisfactory results for a 60-liter still if the operator carefully controlled the rate of volatilization by means of the steam valve. This condensing system has the disadvantage of inefficiency due to the high velocity of the vapors but offers the advantage of ease of construction for small production. For any extended work, the condenser (sketched in Fig. 2) would be more desirable. It should be pointed out that this condenser will have to be constructed so that the operator can actually watch the rate of condensation to prevent undue loss by volatilization or accident by plugging. Time required, 3 hours. This time could be greatly reduced by a more efficient condensing system. This distillation could be carried out in five 5-liter flasks.

10. The volume of distillate required for the volatilization of 430 grams of thymoquinone was only 7 liters. By cohobation this distillate yielded 0.7 gram thymoquinone per liter. The yield, therefore, can be increased about 1% by cohobation. The solid thymoquinone can be powdered, dried between filter paper in the air and used without further purification.

The condensing system consists of a 4-foot condenser leading to a 5-liter balloon flask in the large funnel. The distillate runs into this flask at a temperature of about 60° and is chilled by a rapid current of water kept flowing through the funnel. The flask is provided with a reflux condenser; the quinone should be occasionally pushed back into the flask from this condenser with a long glass rod to prevent plugging. A syphon tube is also provided to draw off the distillate. The stone jars used for the reaction and the filter connected to a carboy by means of an aspirating bottle can be seen in the background.

DETAILS NECESSARY FOR FIGURING COST OF PRODUCTION PER POUND OF THYMOQUINONE.

Total time required for the completion of the operation	30 hours
Actual time of one operator required during this period	10 hours
Apparatus—The 60-liter still was the only apparatus used which is not found in any average laboratory. This can easily be dispensed with and the distillation carried out in five 5-liter balloon flasks.	
Cost of reagents at current prices:[4]	
500 Gm. Thymol — $5.00 per lb.[5]	$5.50
500 Gm. Carvacrol — $5.00 per lb.[5]	$5.50
1.300 Gm. Sodium Nitrite — $1.20 per kg	1.56
2½ liters Alcohol — $0.75 per gal.[6]	.50
2½ liters Hydrochloric Acid — .07 per lb.	.38
1 liter Sulphuric Acid — .09 per lb.	.37
10 liters Ammonium Hydroxide — .09 per lb.	1.80
Total	$10.11

Grand total per lb. thymoquine

Chemicals	$10
Labor	$7
Overhead	?

SUMMARY.

The modified Liebermann-Illinski method of preparing thymoquinone from thymol or carvacrol, as developed in this laboratory, has been used in 500 Gm. batches to test the feasibility of these proportions for production on a commercial scale.

The yield of thymoquinone from carvacrol was 71% of the theoretical or practically as good as the 75% yield on a laboratory scale for this substance. The yield from thymol was 80% of the theoretical whereas 90–93% yields have been obtained in the laboratory. With increased experience, this percent yield on a large scale can be made to equal that of the laboratory. Details are given for handling these materials in the laboratory on this semi-commercial scale.

Details are given so that the cost of production can be easily calculated.

REFERENCES.

1. *Ber.*, 18, 3194, 1895.

2. *Ph. Rev.*, 26, p. 333. A historical résumé of the methods of preparation will be found in this publication.

3. The isomeric phenols thymol and carvacrol make up about 50% of the volatile oils of *Monarda punctata* and *M. fistulosa*, respectively. The thymol and carvacrol used in this laboratory have been obtained as a by-product in the experimental phyto-chemical studies of these plants.

4. The values in this table are for C. P. reagents and in many cases can be reduced by the use of commercial grades.

5. These figures are approximately the jobber's prices for 10-lb. lots at this time. The price on the open market would be higher.

6. This is the price of duty-free ethyl alcohol. Denatured alcohol is quoted at $0.40 per gallon.

THE USE OF SILICA GEL AS A FILTERING AGENT IN PHARMACY.

BY JOHN C. KRANTZ, JR.

The object of this paper is to give a brief description of the chemical nature and surface of silica gel and to point out wherein the pharmacist may take advantage of this excellent adsorbent.

Chemically, silica gel is a hydrated form of pure silica and offers extreme resistance to most reagents. The gel as it appears in commerce contains approximately 18 percent of water. The water content of different samples of silica gel is not always uniform, since on exposure to air at ordinary temperature it will give off or take up moisture, the degree of which depends upon the water content of the gel and the humidity of the atmosphere.

Silica gel possesses a honeycomb structure of an agglomeration of silica nuclei, which is equivalent to a great number of small capillary tubes of silica. Because of this surface arrangement, the gel possesses a tremendous amount of surface energy and is admirably adapted for use as an adsorbent for gases and colloidal impurities in liquids. Chemists have been using the gel for the clarification of oils and especially for the adsorption of such gases as carbon dioxide, ammonia and sulphur dioxide, the results of which have proved to be most successful.

With the above-mentioned chemists' view of silica gel, the writer carried out experiments using the gel in place of talc in official and other formulas. A sample of aromatic elixir was made by the Pharmacopoeial process using silica gel in place of talc and with one filtration a clear preparation was obtained. Another sample of the elixir was prepared without agitation and a clear elixir was obtained after two filtrations, which is quite impossible to obtain with talc under the same conditions.

In syrup of orange, which is possibly one of the most difficult preparations in the Pharmacopoeia to filter clear, a transparent liquid was obtained by the use of silica gel, after returning the first 25 cc of the filtrate to the filter in making a liter.

The official waters, prepared by trituration of the volatile oil with talc, can be filtered clear with one filtration if silica gel be used as the filtering agent. The finished water, in addition to being clear, is free from any foreign coloring matter and possesses as much of the aroma of the oil as an aromatic water made with talc.

The elixirs of the National Formulary can be filtered clear with one filtration by the use of silica gel. For example,—elixir of iron, quinine and strychnine; elixir of cinchona alkaloids, and elixir of cinchona alkaloids with iron or with pepsin can be rendered perfectly clear by means of silica gel. In each case, the quantity of silica gel necessary is about equal to the amount of talc prescribed in the formulas and the manipulation of the gel is identical with that of talc.

From the above experiments the writer has drawn the following conclusions:

1. Silica gel lends itself as a filtering agent because of the character of its surface.

2. In pharmaceutical preparations, silica gel is a more efficient filtering agent than talc.

3. In practically every type of formula in which talc is used as a filtering agent an equal quantity of silica gel may be substituted with more efficient results as to filtering.

SCHOOL OF PHARMACY, UNIVERSITY OF MARYLAND.

WEIGHT FOR VOLUME SOLUTION OF POTASSIUM IODIDE.*

BY IRWIN A. BECKER.[1]

In presenting to this section a paper on so trite a subject, an excuse should be offered.

My reasons for choosing this subject are: Firstly, whenever, during my past attendance at these meetings, discussion has arisen involving the content of a saturated solution of potassium iodide many diverse opinions were expressed relative thereto; secondly, in a paper read by a member at his state association meeting, and abstracted on page 45, Vol. I, 1912, A. PH. A. Year Book, appears a table giving the content of a saturated solution of this salt, which statement is at variance with my experience with this solution; and lastly, to offer a definite solution in place of the varying "so-called" saturated solution, and to demonstrate its easy preparation.

Having made wt./vol. solutions in 1-liter quantities over a period of more than twenty years is the qualification, and this experience has provided ample opportunity for observing it under varying temperatures, various brands of manufacture, tendency to discolor and its rate, etc.

This paper is practical rather than theoretical, but a few theoretical considerations will be of service in judging the finished product.

The U. S. P. gives the solubility of potassium iodide in water as 1 Gm. in 0.7 mil at 25° C. From column four, in the U. S. P. table on page 653, for this temperature, we find a 100-mil flask holds 99.6039 Gm., waiving corrections for barometric pressure.

Seventy mils, the necessary quantity of water, according to the U. S. P., to dissolve 100 Gm. of potassium iodide, will weigh $^{7}/_{10}$ of 99.6039 Gm., or 69.72273 Gm.; plus the 100 Gm. of salt, makes a total of 169.72273 Gm. for the finished solution. This gives no idea, however, of the volume of the solution.

One thousand grams KI dissolved in sufficient water to make 1000 mils finished product, or 100 Gm. in 100 mils. This solution can be made several ways—by adding water to the salt contained in a graduate leaving sufficient space for expansion of the fluid as it regains room temperature, then cautiously adding more water and stirring until the salt is dissolved, and the correct volume is reached; or, by making the solution in a flask bearing a mark at the proper volume, adding water to hold the volume below the mark when the salt is brought into solution by heat to just dissolve it, and then bringing to the proper volume, by the addition of water, at the normal temperature.

In actual practice we make the solution in a liter graduate, without heat, keeping below the mark, so there is still space for additional solvent when it reaches room temperature. The mixture is stirred occasionally until complete solution is effected, the volume being made up to the mark when only a very small portion of the salt remains undissolved, so there can be no marked reduction in temperature by the solution of the remainder. We usually start the solution late one day and finish it

* Read before Section on Practical Pharmacy and Dispensing, A. Ph. A., Cleveland meeting, 1922.

[1] The author prepared a solution of potassium iodide. A motion was made and carried that the National Formulary Committee consider the inclusion of a Solution of Potassium Iodide in the N. F. V.

the next morning, after it has regained room temperature. The graduate is standardized for 60° F., but this makes no difference, as the subsequent measuring is made with graduates and medicine glasses similarly standardized.

Making trial solutions in a 100-mil flask marked at 25° C. gave the following weights at the temperature recorded: A, 170.05, at 24° C.; B, 167.206, at 27° C.; C, 169.69, at 29° C. The flask was marked to hold 99.604 Gm. of freshly distilled water at 25° C., no correction for atmospheric pressure, weighed on a box prescription scale.

Whenever a freshly made solution shows the slightest discoloration it is cleared with a few particles of sodium thiosulphate, which quickly clear it, and, this is also done at any time the solution develops color. The sample of highly discolored solution will be cleared before you to show how little thiosulphate it takes and how quickly it is done.[1] Since the dose of thiosulphate may be from 1 to 4 Gm., this small amount can do no harm, neither should the sodium iodide thus introduced into the solution make any difference.

This solution usually remains undiscolored in our shop bottle for more than several months, but when it does not, the "cleared" solution usually keeps well.

From the few data submitted, it is evident that this solution closely approximates the theoretical saturated solution, and can be dispensed as such.

In my experience, this solution has been singularly free from portions of the salt crystallizing out from solution.

In conclusion I would urge the dispensing of this solution of *definite* strength instead of the *indefinite* so-called saturated solutions, usually extemporaneously made.

MICHAEL REESE HOSPITAL,
CHICAGO, ILL.

APPARATUS USED IN MANUFACTURING IN CONNECTION WITH THE PRESCRIPTION DEPARTMENT.*

BY CROSBY B. WASHBURNE.

This paper will discuss the installation of machinery used in manufacturing in connection with the prescription department of a retail drug store. The problem in this case is of necessity somewhat different from that relating to machinery used for similar purposes in large manufacturing institutions.

The apparatus necessary is that which will assist in mixing powders; mixing liquids; compressing suppositories; grinding substances of different nature, such as hard crystalline substances, and unctuous substances such as cacao butter.

The powder mixer can be made of any size from twenty-five to two hundred pounds, capacity to suit the demands of the particular requirement. The one which we have in operation is about a one hundred and fifty pound mixer and is made as follows: A rectangular box, with square ends measuring two feet and the length of the box being four feet, is covered with cloth resembling court plaster, which is tightly glued down to prevent sifting. It is swung from the center by short shafts

* Read before Section on Practical Pharmacy and Dispensing, A. Ph. A., Cleveland meeting, 1922.

[1] The author demonstrated the procedure at the Section Meeting.

supported by a strong substantial base, in order that it may be revolved end over end. The opening is at one end and the cover is fastened with clamps; this, when removed, will allow the placing of a sieve in order that all powder may be sifted before completed for mixing. We have several of these sieves, which enables us to use the correct mesh for any particular requirement. After the powder has passed through this process, a latticed screen is placed in the center of the mixer which breaks up the powder as the mixer is revolved, thus preventing it from sliding end to end in mass. This method will thoroughly mix any powder with a minimum of effort and without the customary distribution of dust.

The mixer for liquids is constructed of a porcelain can, resting on a revolving base, with mixing paddles on the inside of the can which revolve in an opposite direction; this construction enables the operator to thoroughly mix any liquid, semi-liquid or ointment in a most efficient manner. It is used for the stirring of cold creams, hydrous wool fat, milk of magnesia, and the mixing of ointments preparatory for the ointment mill.

The ointment mill which we use is one of the ordinary variety of one-gallon capacity fitted with a tight and loose pulley attachment. The ointment is first passed through the mixing machine described and then through the mill. In this way we secure better and smoother ointments than can be made by hand or mortar method, and also more economically, as the operation is performed by aid of electric power. These two machines soon paid for themselves in their labor saving.

The suppository machine is a hand power affair designed as follows: A heavy portable cast iron tube is lined with brass and mounted on a very substantial base. This, when the machine is in operation, contains the suppository mass, sufficient for about one hundred suppositories. A brass piston, operated by a large fly wheel, exerts a great amount of pressure on the mass, thus moulding it and forcing the suppositories out of the opposite end in cylindrical form. They are then passed into a grooved container of a seventy-two suppository capacity. The cylinders are then cut and the suppositories are ready for pointing. The entire operation takes about ten minutes.

For a grinding machine we have selected an ordinary hand mill which we converted into a power machine by a pulley attachment. It is employed for various purposes such as grinding and pulverizing of sodium hydroxide of which we use a considerable amount; the pulverizing of sodium bromide which often solidifies into almost unbreakable chunks; the grinding of drugs, such as cardamom seed from the entire pod, thus obtaining a fresh unvolatilized drug. Tincture of Gentian Compound prepared from this powder produces a very superior tincture, both from the standpoint of fragrance and of palatability.

The machine used in mixing unctuous substances is an ordinary meat chopper of the larger variety equipped with a pulley and gear. A fifteen-thousand suppository mass can be mixed in an hour and a half. This could not be done by hand in an entire day; the result is a uniformly mixed mass that is above criticism, and is obtained with a minimum amount of labor.

In closing I might say that all of these machines, except those mentioned as being operated by hand power, are operated by a one and a half horse power motor on a direct line shaft. They have given entire satisfaction, not only from the viewpoint of pharmaceutical elegance of the products, but also from that of economy.

OINTMENT POTASSIUM IODIDE.*

Comments on its past, present and future.
Formulas and chemistry involved.

BY IRVAN E. TAYLOR.

On considering the formula given by the U. S. P. VIII consisting of

Potassium iodide	10.0 Gm.
Potassium carbonate	0.6 Gm.
Water	10.0 Gm
Benzoinated lard	80.0 Gm.
	100.0 Gm.

Dissolve the potassium iodide and the potassium carbonate in the water by trituration, and gradually add the benzoinated lard and incorporate thoroughly. This ointment must be freshly prepared.

After this ointment has been prepared and allowed to stand for a while a number of chemical reactions may occur. These are mainly the saponification of a portion of the lard, the turning rancid of the lard, the neutralization of the liberated fatty acids, the coloration of the ointment and the granulation of the ointment.

The ointment when first prepared is alkaline in reaction. The first chemical reaction that may occur is the saponifying of a small portion of the lard by the potassium carbonate, forming a potassium soap or a soft soap, with the liberation of glycerin, which being a preservative would prevent or retard the lard from becoming rancid, but the glycerin liberated is in too small a quantity to be beneficial.

The second chemical reaction is in all probability the rancidification of the lard, or in other words the lard is decomposed into glycerin, and fatty acids, mainly oleic, stearic and palmitic acids. There are two serious objections to the dispensing of this ointment in this rancid condition: 1, it is irritating, due to the free fatty acids present; 2, the liberated fatty acids would then react to decompose the potassium iodide, liberating iodine. The iodine would be absorbed in too large a quantity and would be irritating. The soap formed during the saponification of the lard would aid in the absorption of the iodine. The remaining potassium carbonate combines with or neutralizes all or a portion of the free fatty acids forming with them potassium oleate, stearate and palmitate, water and carbon dioxide, hence preventing the liberation of iodine from the potassium iodide. If through chance any portion of the potassium iodide has been reduced to iodine, the potassium carbonate combines with it to form potassium iodide and iodate.

This ointment becomes granular due to the crystallizing of the potassium iodide, which is caused by the spontaneous evaporation of the water used to bring the iodide and carbonate into solution. Potassium carbonate being deliquescent will absorb moisture from the air, but in all probability in not large enough quantities to keep the potassium iodide in solution, and this will prevent to a certain extent the granulation of the ointment.

As one can readily see, the potassium carbonate used in this preparation is a very important constituent and it hardly looks reasonable that so small an amount of potassium carbonate could really accomplish this. Of course by using

* Read before July meeting, Indianapolis Branch, A. Ph. A., 1922

the benzoinated lard there is less chance of the lard turning rancid, but in all probability all of the potassium carbonate is used in the saponification of a portion of the lard.

The formula given by the N. F. IV:

Potassium iodide	10.0 Gm.
Sodium thiosulphate	1.0 Gm.
Water	9.0 Gm.
Benzoinated lard	80.0 Gm.
	100.0 Gm.

Dissolve the potassium iodide and sodium thiosulphate in the water and add the benzoinated lard and incorporate thoroughly. This ointment must not be dispensed unless it has been freshly prepared.

is practically that of the U. S. P. VII only that the percentage of potassium iodide has been reduced from 12% to 10%. This preparation is evidently losing in popularity, but nevertheless a superior product is to be found in the N. F. IV. As has been pointed out in the formula, this ointment no longer contains the alkaline potassium carbonate, which is irritating, but has in its place sodium thiosulphate, commonly known as "hypo." In this preparation made by the present formula there are only a few chemical reactions that may occur.

These are mainly the rancidification of the lard, the liberation of iodine from the potassium iodide and the decolorization of the liberated iodine by the sodium thiosulphate, there being formed potassium and sodium iodides and sodium tetrathionate. This ointment is also granular due to the spontaneous evaporation of the water that is used to dissolve the potassium iodide and sodium thiosulphate.

I am introducing the following formula with the expectation of its overcoming the defects of the two preceding formulas.

Potassium iodide	10.0 Gm.
Sodium thiosulphate	1.0 Gm.
Glycerin	9.0 Gm.
Benzoinated lard	80.0 Gm.
	100.0 Gm.

Dissolve the potassium iodide and sodium thiosulphate in the glycerin and incorporate the benzoinated lard thoroughly.

This ointment possesses a number of advantages over the former and present official ointment, inasmuch as it contains sodium thiosulphate (also contained in the N. F. IV) and glycerin which is not given official recognition. The glycerin should be used for two reasons: first as a preservative which would prevent or retard the turning rancid of the lard, and secondly as a solvent for the potassium iodide and sodium thiosulphate. It is much better than water in that it is non-volatile and is also hygroscopic; this in turn will prevent the ointment from becoming granular which is sure to take place when water is used as a solvent which is volatile and would leave the potassium iodide and sodium thiosulphate in a crystalline form. As we all know, a granular ointment is not desirable.

PRESIDENTIAL ADDRESS OF SAMUEL L. HILTON, PRESIDENT OF THE AMERICAN PHARMACEUTICAL ASSOCIATION, 1921–1922.

Fellow Members, Ladies and Gentlemen:

The history, growth and development of the American Pharmaceutical Association comprise a remarkable record for an honorable calling, which, however, on careful analysis shows a large number of members of this calling who lack interest in its welfare and advancement, little realizing that by further advancing the Art of Pharmacy they advance their own interests, develop the Art and by greater coöperation they would bring about a recognition much desired by all and as yet unattained.

Pharmacy and the American Pharmaceutical Association have witnessed many struggles; many more no doubt are in store for the future; many difficult problems to-day are pending. The American Pharmaceutical Association has unswervingly maintained allegiance to the principles laid down by its founders—principles that have carried it through all of the vicissitudes of its seventy years of existence with honor and ever-growing strength, and will continue as long as it exists, but it could and would accomplish more and perform better work if we could induce more members of our calling to join with us and show that pharmacists stand together and

S. L. HILTON.

that the American Pharmaceutical Association is representative of American pharmacy.

Our institution was organized and administered in its earliest days by men who were leaders. Time has proved the correctness of their ideals and principles, and the Association has grown step by step with ever-increasing capacity to advance pharmacy to the present status. The time has now arrived when greater strides must be made, a greater organization must be developed, more must be accomplished and there must be more interest and enthusiasm to awaken pharmacists from their lethargy and make them recognize that their welfare depends upon coöperation, and, what better agent could they find than the American Pharmaceutical Association, with its years of experience and an organization that is truly representative of every branch of American pharmacy—one that has stood for the best and highest possible standards? When this is brought about, pharmacy will come into its own and will be looked up to as never before and will be consulted on all occasions affecting the art of pharmacy and pharmacists in general, with the result that much freak legislation and many foolish regulations will cease, or a very different story will be told at the polls.

The reorganization plan submitted by the Executive Committee of the Council, to the Council, which is now being considered and will, no doubt, be presented very shortly for your consideration is a move along constructive lines. I earnestly

urge that you give the report your careful thought and consideration. While the plan may not be perfect (no one could expect it to be), you must constructively criticize and improve it, solely for the purpose of securing a greater and more representative organization, one that will thus be able to render more and better service to pharmacy in all of its branches, and make possible the achievement of greater financial results to pharmacists generally.

If it has taken courage—if it has taken a clinging to rock-ribbed principles—if it has taken character for this country to grow from its earliest beginnings to this great nation, whose influence is to-day felt in every corner of the globe—it has taken the same courage and character in the individuals who, year after year, have taken an active part in the affairs of the American Pharmaceutical Association and have helped to raise this Association to the position it now occupies. Let us be heartened by the history of the American Pharmaceutical Association. Let us never be content to lapse into restful and contented repose; we cannot stand still, we must advance, and are determined to advance. Let the great traditions of the past be the spur to call forth greater efforts in the future. Our task is to build more strongly, always more efficiently, more intelligently, to the end that we may not only keep pace with the development of our country but retain our place as the leader and as the moulder for the best development in pharmacy. The reorganization plan just alluded to when put in its final shape and adopted will, I believe, accomplish such a result and produce an association that pharmacy will be proud of and an association that will be recognized the world over in matters pharmaceutic.

Since our last meeting several of our prominent members have passed to the great beyond—Prof. A. W. Linton, Secretary of the Section of Historical Pharmacy; Dr. Otto A. Wall; Simon N. Jones and R. M. Shoemaker. May I not ask, as a mark of respect to their memory and also to all others of our deceased members I may have failed to mention, that we pause and stand with bowed head for a few moments?

THE JOURNAL OF THE AMERICAN PHARMACEUTICAL ASSOCIATION.

Our JOURNAL has been well and ably looked after by our Editor, who, in my judgment, is deserving of much praise and should receive more coöperation and support from our members. I have one suggestion to offer, one that is based on experience not only during my term of office as your President, but also previously—a complete list of officers of the Association and also its committees should appear in each issue, for the reason that it is sometimes difficult when called upon, as I have been, for data of this kind, to be able to give the information quickly without having to look over a number of copies of the JOURNAL.

PERMANENT HOME.

I consider we have been exceedingly fortunate in having been able to secure Dr. J. H. Beal as chairman of this important Committee, and his associates are all men of the highest standing in our calling and able workers. This promises for success. A good start has been made, the details of which I will allow the Chairman to report. I do, however, urge each member of the Association to contribute liberally so as to make the project an accomplished fact at an early date. I have one thought to suggest and I offer same for your careful consideration. We now have a fund known as the Procter Memorial Fund, for the purpose of erecting a statue

to Wm. Procter, Jr., at Washington; if this is carried out it will surely be placed in some out-of-the way corner where it will seldom be seen and will eventually be relegated to the "junk heap." Transfer this fund to the Permanent Home Fund with the distinct proviso that the laboratory, library or museum be called the Procter Laboratory, Library or Museum. I know of no better way than this to perpetuate the memory of this great leader of American pharmacy; it would be far better than erecting a monument that would do practically no good and over which we would have no control.

I therefore recommend that the Wm. Procter Memorial Fund be transferred to the Permanent Home Fund, with the proviso as indicated, the same to be determined by the Council.

UNIFORM STATE NARCOTIC LAWS.

Uniform State Narcotic Laws are more desirable to-day than ever before and our Association can be of material assistance in accomplishing such results if we put forth the proper effort.

Greater uniformity, more simplicity in wording, less ambiguity, with specific provisions of law without executive regulations should be the goal we strive for; no legislative body should enact a law requiring regulations except in a general way for the enforcement of the law, for the reason that regulations are invariably made which are or come very near being additions or amendments to the law. I would therefore recommend that we take an active part looking to this end, and possibly our Committee on Membership would be in a position to take over this work and obtain results, as its membership is widely distributed in every section of the country.

THE 18TH AMENDMENT AND THE VOLSTEAD ACT.

This Act has placed a heavy burden on our calling unnecessarily and forced us, without our consent, to do what should be done by the Federal Government or by the state. If we are to have prohibition and alcoholic liquors are necessary as medicines, the same should be dispensed under entire government supervision to rid pharmacy of liquor sellers who bring only disgrace on our calling.

I would therefore recommend that this Association again go on record in opposition to the sale of alcoholic liquors by pharmacists.

PREMEDICATED ALCOHOL.

Under the provisions of the Volstead Act, and the manner in which the same is worded, it would seem that the Commissioner of Internal Revenue has the power to provide Premedicated Alcohol for use in the manufacture of medicinal preparations for internal use. While, no doubt, this would be a decided advantage to the manufacturers of ready-made package preparations it would be a decided disadvantage to the retail pharmacist, for the reason that he could not avail himself of the innumerable premedicated alcohols that would have to be used; consequently, he would be compelled to use tax-paid alcohol, tie up the greater part of his capital in alcohol, or purchase all of his pharmaceuticals; further, the regulations that would have to be, and would be, promulgated would be very drastic and would prevent the pharmacist from making U. S. P., N. F., and extemporaneous preparations, even at the prescription counter, because of the tax-free provision; therefore, he would have to use tax-paid alcohol, to his disadvantage, because the large concerns—chain stores included—would avail themselves of every opportunity,

and the consuming public would save nothing, as on the average prescription or pharmaceutical preparation purchased there would be a saving of only a few pennies and no appreciable difference in price could be made; the pharmacist, however, would be required to meet competition and at the end of the year he would find that he had used many gallons of tax-paid alcohol for which he had paid the tax of $4.18 per gallon.

At the outset, and when this movement was discovered, a large representative meeting of all drug interests was held at Washington to enter a strong protest. Your President was called upon to preside and the question was fully discussed, the result being that a committee was appointed to draft suitable resolutions in opposition to any provision providing premedicated alcohol for the manufacture of medicinal preparations for internal use. The resolutions were promptly put into shape and the same were presented to the Secretary of the Treasury the following morning. As yet nothing has been done. We must, however, be on the job, as the very life of pharmacy is at stake and depends upon the pharmacist securing his alcohol untrammeled and with as little trouble as possible. I would therefore recommend that the American Pharmaceutical Association go on record in opposition to any provision providing for premedicated alcohol for the manufacture of medicinal preparations tax-free, and that suitable resolutions be drafted and forwarded to the Secretary of the Treasury.

PUBLICITY.

The one thing lacking, and probably the most important, is publicity in the daily papers; a proper propaganda from time to time in the newspapers would be of material help in educating the public. We are fortunate in having one member who is developing this important subject, and I am sure you will be interested in his talk at this meeting. More publicity in the daily press can be brought about if we approach the proper persons and impress upon them the necessity and advantages that will result for the public benefit.

One of the first things desirable is the discontinuance of the naming of drugs in reporting narcotic raids and also in cases of suicide by poisons, in the daily press. What good is accomplished? On the contrary, the papers are suggesting to the evil inclined, ways and means to use narcotic drugs and poisons, and nothing is accomplished for the good of humanity. I therefore recommend that we use our best endeavors to bring about more publicity and the elimination of the names of narcotic drugs and poisons in all published articles.

THE UNITED STATES PHARMACOPOEIA AND NATIONAL FORMULARY.

The progress shown in the revision of both of these standards during the past year is worthy of comment, and the chairmen of the committees deserve great praise for the way they have conducted this very important work; many improvements are contemplated and many obsolete preparations will be deleted. As yet it is too early to state when the revisions will be completed. The National Formulary I consider our most valuable asset; when the publication is ready for distribution more publicity than ever should be given showing its value as a standard, and its sale should be pushed vigorously.

I am sure the Chairman of the National Formulary Committee will make a full report and, no doubt, we will hear from the Chairman of the Pharmacopoeial Revision Committee. I would therefore recommend that the Committee on Pub-

lication take immediate steps to conduct an N. F. publicity campaign, looking to making the National Formulary more popular with physicians and pharmacists.

HOSPITAL PHARMACISTS.

For the purpose of maintaining, yes, increasing the future professional standing of pharmacy, I wish to call a thought to your attention and also to the attention of the members of the American Conference of Pharmaceutical Faculties. Hospital pharmacies are a necessity; wonderful opportunities are always at hand for scientific pharmaceutical work; their development has been neglected; many instances can be cited where interns and others without any knowledge of pharmacy have dispensed medicines to the sick and suffering instead of well-trained licensed pharmacists. No hospital should be allowed to dispense drugs to patients through other than licensed pharmacists. The schools and colleges can develop this branch of pharmacy by furnishing competent men, thus placing in every dispensary of every hospital a properly trained pharmacist. With but slight additions to their courses, bacteriology, X-ray work, etc., they could place these men on a truly professional basis and at the same time elevate the standing of pharmacy. I would therefore recommend that we bring this question to the attention of the American Conference of Pharmaceutical Faculties with the request that they give same careful consideration.

YEAR BOOK.

The last edition of the YEAR BOOK reflects great credit on Dr. H. V. Arny, our Reporter on the Progress of Pharmacy. He deserves unstinted praise. I understand we will lose his services this year as he feels he can no longer give it the necessary attention and perform his other duties. It is very deeply regretted by me and, I am sure, I express the feeling of every member of this Association at this great loss. It will be most difficult to fill his place. We owe Dr. Arny a debt of gratitude for the many sacrifices he has made in performing his work on the YEAR BOOK, which is generally recognized as the most valuable reference book published to-day on pharmacy. I feel that some substantial expression should be made at this meeting for the capable, accurate and painstaking manner in which he has performed his duty, and I so recommend.

NATIONAL DRUG TRADE CONFERENCE.

This delegate body is but a clearing house for the views of all national drug organizations; it is the only place where all can assemble, express themselves on important questions affecting all branches of the drug trade and endeavor to find common ground upon which each constituent organization can stand. While this organization cannot take any definite action binding the member organizations, I am sure the results so far attained have proved that many questions which have worried us and the other member organizations have been satisfactorily solved through the efforts of the Conference. I would therefore recommend that we continue our affiliation and send delegates to participate in the deliberations of the Conference.

NATIONAL ASSOCIATION OF BOARDS OF PHARMACY AND AMERICAN CONFERENCE OF PHARMACEUTICAL FACULTIES.

The National Association of Boards of Pharmacy and the American Conference of Pharmaceutical Faculties are doing splendid work; we should be proud that they meet with us and join in our deliberations; much has been accomplished

through their efforts; much remains to be done; advancements must be made and I feel that we can leave it to their judgment as to how rapidly further provision can be put into effect. I truly hope they will continue their affiliation with us and I would recommend that the Association lend both bodies their support and assistance, as thereby we will be elevating pharmacy and providing better education for those in our calling.

COMMITTEES.

I have refrained from discussing the general work of our Committees, with two exceptions—and these only in a casual way—for the reason that I know Committee Chairmen will make concise and complete reports. I feel I would be negligent if I did not say a word of commendation relative to their work—to each chairman and to his associates on the respective committees I offer my thanks for the good work they have done during the past year. It was my intention to have bi-monthly reports, but while all of the committees reported good progress up to January 1st, circumstances over which I had no control prevented me from following up the work started, and, thereafter, discontinued the bi-monthly reports. They made a good early start, had their work well in hand and I am sure will make reports satisfactory to the Association.

RESEARCH.

Pharmaceutical Research to-day is the most important subject we have for consideration and it must be encouraged and developed in the broadest possible manner. Our Committee under the guidance of its able Chairman, Dr. H. V. Arny, has done and is doing magnificent work. The field is exceedingly broad and the problems to be solved many; coördination and coöperation are necessary to prevent duplication of work. The Chairman has fully considered this important point and I wish to compliment him personally, as well as for the Association, for the careful course he has pursued, looking to these ends, as evidenced by the conference held at Cleveland a day or two ago; this means progress and progress must be made.

Right at this point let me make a suggestion that I consider valuable. If our Association will properly take up the question of Pharmaceutical Research with the Bureau of Chemistry, I am in a position to state that we will receive cooperation, as this question is at present under consideration, and the Bureau is desirous of entering the field of research.

It was my very great pleasure to listen to a talk by Dr. David I. Macht, of Johns Hopkins University, before the Baltimore Branch of the American Pharmaceutical Association, on the "Benzyl Derivatives." This work was accomplished partially through a grant from our Research Fund. So carefully and thoroughly was the work done that the element of doubt with reference to the constituents of certain alkaloids, the action of these alkaloids on the human system, and the reason for such action have been definitely determined and no difficulty should be experienced in selecting the proper alkaloid of these drugs to produce a definite specific result.

In closing my address as your President I would be very neglectful if I failed to extend to my associates, the officers and committee men, my most heartfelt and sincere thanks for their hearty coöperation and the good work they have one and

all performed during the year just closing. The committees have been exceedingly active and have had the welfare of the Association at heart; pharmacy profits thereby. I personally thank each and every one of you most heartily for the assistance you have given me; had it not been thus I feel that my term of office would have been a failure.

And to you fellow members, who have conferred upon me the highest honor within the gift of American Pharmacy, I feel I owe much; I feel that the Association has given me more than I am deserving of and more than I have in return given to the Association. I trust you will bear with my shortcomings. During your deliberations I shall endeavor to preside fairly and impartially, giving each and every one ample opportunity to be heard. If I err it is a mistake in judgment and not of the heart. The year has brought me many friends and I have not hesitated to uphold the high standards and principles upon which this grand old organization was built and from which it has never deviated.

Fellow members, I thank you most heartily for the honors you have conferred upon me.

SUMMARY OF RECOMMENDATIONS.

1. Bi-monthly publication in the JOURNAL of the names of the officers.

2. Transfer of the Procter Memorial Fund to the Permanent Home Fund and naming the Library, Laboratory or Museum the Procter Library, Procter Laboratory or Procter Museum.

3. Take more active part, looking to uniform state narcotic laws and suggesting Committee on Membership to look after same.

4. Take definite position in opposition to the sale of alcoholic liquors.

5. Oppose the provision providing for premedicated alcohol for use in internal medicines and drafting resolutions to be forwarded to Secretary Mellon.

6. Secure more pharmaceutical publicity in daily press and endeavor to eliminate the names of narcotic drugs and poisons in all published articles.

7. Direct the Committee on Publication to establish an N. F. publicity campaign to make the National Formulary more popular.

8. Call the attention of the American Conference of Pharmaceutical Faculties to the need for better educated scientific hospital pharmacists.

9. Some definite expression of appreciation to Dr. H. V. Arny, for his valuable work as Reporter on the Progress of Pharmacy.

10. Continue our affiliation by sending delegates to the meeting of the National Drug Trade Conference.

11. Lend our earnest support to the work of the National Association of Boards of Pharmacy and the American Conference of Pharmaceutical Faculties.

SEVENTIETH ANNUAL MEETING OF THE AMERICAN PHARMACEUTICAL ASSOCIATION, CLEVELAND, AUGUST 14-19, 1922.

ABSTRACT OF THE MINUTES OF THE FIRST GENERAL SESSION.

All sessions of the Seventieth Annual Meeting of the American Pharmaceutical Association were held in Hotel Statler, Cleveland, Ohio. The First General Session was convened by President Samuel L. Hilton, Tuesday, August 15, at 10.30 A.M. The procedure of this session was provided for by resolution at the sixty-ninth annual meeting held in New Orleans, as follows:

> That the First General Session of the American Pharmaceutical Association and the First Session of the House of Delegates shall be a joint session to listen to the annual addresses of the President of the American Pharmaceutical Association, the Chairman of the House of Delegates, the Secretary of the American Pharmaceutical Association and the Secretary of the House of Delegates.
>
> That the Chairman of the House of Delegates shall preside while the President of the American Pharmaceutical Association presents his address and that the President of the American Pharmaceutical Association shall preside while the Chairman of the House of Delegates presents his address and that the joint session shall then dissolve in order that the several bodies may transact their business separately.

President S. L. Hilton read a letter of greeting from President Harding, as follows:

> "My dear Mr. Hilton: Thank you for calling my attention to the approaching annual meeting of the American Pharmaceutical Association at Cleveland. I will be glad to have you extend my greetings, and the assurances of very best wishes to the members who will be gathered at that time.—Very truly yours, (signed) Warren G. Harding."

The announcement was cheered by the membership and, on sustaining the motion of H. V. Arny, the Secretary was instructed to send a telegram expressing the thanks and appreciation of the Association for the greetings.

President Hilton requested President Ambrose Hunsberger and Secretary Samuel C. Henry, of the National Association of Retail Druggists, to occupy the platform, also the following members who attended the Cleveland convention in 1872:

James S. Robinson of Memphis, Tenn.; Thomas D. McElhenie of Brooklyn, N. Y.; George H. Schafer of Fort Madison, Ia.; and Joseph L. Lemberger of Lebanon, Pa.; the latter is an ex-president of the Association and Mr. McElhenie is the Honorary President, A. Ph. A., of this year.

Admiral William C. Braisted was invited to a seat on the platform; Lieut. H. B. LaFavre, as the representative of the Surgeon General of the U. S. Navy, was introduced. James Finneran, as ex-president of the N. A. R. D., sat with the ex-presidents of the American Pharmaceutical Association; they are: J. U. Lloyd, J. L. Lemberger, H. H. Rusby, J. H. Beal, John G. Godding, H. M. Whelpley, L. E. Sayre, Lewis C. Hopp, William B. Day, C. A. Mayo, C. H. LaWall, C. H. Packard, E. G. Eberle, President Samuel L. Hilton.

Messrs. Thomas D. McElhenie, Joseph L. Lemberger, George H. Schafer, and James S. Robinson were introduced by Mr. Muhlhan and presented with gold medals on behalf of the Local Association by Eugene R. Selzer, who stated that the token was an expression of appreciation on the part of the Cleveland membership; he doubted whether any other organization could have such hale and hearty veterans in attendance, after a lapse of fifty years.

A song, "Welcome A. Ph. A." (Tune: "March of the Men of Harlech"), was rendered by local talent. Poet laureate Carl Winter, of the Northern Ohio Druggists' Association, composed the lines, and other selections interspersed the program of the convention.

President Hilton explained the method of procedure for this session; Chairman E. F. Kelly of the House of Delegates presided while the former read his address. (Printed on page 707, this issue.)

Heber W. Youngken moved that the address of the President be received, that the recommendation therein relating to the retiring Reporter on the Progress of Pharmacy, H. V. Arny, be concurred in, and the remainder of the address be referred to a committee of five. The motion was duly seconded and unanimously carried. Chairman E. F. Kelly so declared, and stated that the Committee would be appointed by Vice-President Charles E. Caspari.

President S. L. Hilton resumed the Chair, and Chairman E. F. Kelly of the House of Delegates, A. Ph. A., read his address. This, on motion duly seconded and a vote, was received and referred to the House of Delegates. (To be printed.)

General Secretary William B. Day read his report, which was received and ordered to be printed.

Recording Secretary Jeannot Hostmann of the House of Delegates read his report.

J. H. Beal stated that the latter report should properly be presented to the House of Delegates, and moved that it be referred to that body. It was so voted. (To be printed.)

Secretary William B. Day read a telegram of greetings from fellow-member W. Bruce Philip.

The Secretary was requested to acknowledge and reply with fraternal greetings to a telegram of like purpose received from the Canadian Pharmaceutical Association, in convention at Port Arthur, Ontario.

Charles H. LaWall moved that an honorarium of $500.00 be awarded to Dr. H. V. Arny in recognition of and as a slight token for his valuable work rendered this Association. The membership indicated its unanimous approval by a rising vote and applause.

The joint session was then dissolved and Vice-President Charles E. Caspari, after calling the Association to order, appointed the following members of the Committee on the President's address: H. V. Arny, Julius A. Koch, Jacob Diner, H. M. Whelpley, Charles H. LaWall. The Vice-President stated that the matter concerning the Reporter on the Progress of Pharmacy had been disposed of and was no longer a matter for consideration by the Committee.

President S. L. Hilton resumed the Chair.

Secretary A. G. DuMez read the minutes of the Council. They were, on motion and a vote, approved.

President Hilton announced an adjournment for five minutes so that the members in attendance could select the Nominating Committee. It was so ordered; on reconvening the following were named on latter Committee: Alabama, L. C. Lewis; Arkansas, Frank Schachleiter; Connecticut, B. E. Höckert; District of Columbia, Arno Viehoever, L. F. Kebler; Illinois, J. H. Beal, William Gray; Indiana, F. W. Meissner, W. F. Gidley; Iowa, R. A. Kuever, Geo. Judisch; Kansas, M. Noll, L. E. Sayre; Maryland, E. F. Kelly, H. L. Meredith; Massachusetts, C. H. Packard, James F. Finneran; Michigan, W. M. Chase, M. A. Jones; Minnesota, E. L. Newcomb, G. Bachmann; Missouri, C. E. Caspari, L. G. Blakeslee; Nebraska, R. A. Lyman; New Jersey, H. H. Rusby, Jeannot Hostmann; New York, Jacob Diner, W. C. Anderson; North Carolina, E. V. Zoeller, J. G. Beard; North Dakota, W. P. Porterfield; Ohio, E. R. Spease, C. A. Mayo; Pennsylvania, Ambrose Hunsberger, F. E. Stewart; South Carolina, W. H. Zeigler, J. M. Jordan; South Dakota, D. F. Dexter, Anton Hogstad, Jr.; Tennessee, E. V. Sheely; Texas, C. A. Duncan, E. G. Eberle; Utah, John Culley; Virginia, W. G. Crockett, A. L. I. Winne; Wisconsin, Edward Kremers; Members-at-large, appointed by the President: E. Fullerton Cook, H. M. Whelpley, John G. Godding, S. L. Antonow and L. C. Hopp.

Clyde L. Eddy presented House Resolution No. 258 for consideration.

On motion of J. H. Beal, a second and a vote, the matter was referred to the Council for consideration and report.

The First General Session of the American Pharmaceutical Association was then adjourned.

SECOND GENERAL SESSION.

The Second General Session of the American Pharmaceutical Association was convened by President S. L. Hilton at 9.30 A.M., August 17, 1922.

The minutes of the First General Session were read by Secretary William B. Day, and approved.

Secretary A. G. DuMez read the minutes of the Council.

H. V. Arny moved that the report be received and that the Association proceed with the consideration of the Reorganization Plan, presented in the minutes; motion was seconded by Jacob Diner.

Frank H. Freericks discussed the instituting clause of the submitted plan,—"In the event that this plan is adopted, it is intended that it shall automatically go into effect after 20 state associations have given definite notice of their acceptance and that they will come in with at least 51% of their membership."

He contended that it would be impossible, at once, to bring in 20 state associations with 51% membership in the American Pharmaceutical Association.

He referred to a plan presented by J. H. Beal at the recent meeting of the Ohio state association which provides for the formation of county associations, represented by delegates

in the state associations, and from these delegates are chosen to the national organizations.

Mr. Freericks recognized in the plan submitted the organization of a delegate body in which the states are represented. "The plan has never been brought before them," he said, and, "in order to do this, each state association should devote one entire session to the affairs of the A. Ph. A.—that which the Association stands for, what it proposes to do, the things that it proposes to have the state associations do through it—in that way, a closer association will be established, and every one present at the meeting, who is not a member of the A. Ph. A., will say to himself—'I ought to belong.'" "At these meetings," the speaker continued, "members of the American Pharmaceutical Association should be present, prepared to submit the organization plan and its purposes and every other subject of mutual and general interest. Instructions should be given so that the discussions would follow lines that will bring about a proper understanding and the connection that is desired and desirable. The details of organization can follow the plan presented quite closely."

Discussion followed by Messrs. Sayre, Diner, Arny, Noll, Judisch and others. It was submitted that there should be an incentive for larger membership in the American Pharmaceutical Association. The final result was that the paragraph under discussion was amended by motion of J. H. Beal, seconded by Jacob Diner, "that the form of organization be made effective, when twenty states having ten percent or more of membership in the American Pharmaceutical Association shall adopt it; with the proviso that, if at the end of five years any state shall have a membership in the American Pharmaceutical Association of less than 51% of its state membership, its right to participate in the House of Delegates, A. Ph. A., automatically ceases and terminates."

After voting on the amendment, which was carried, the Reorganization Plan, as amended, was adopted unanimously.

H. V. Arny moved that the details of carrying out this plan of organization be entrusted to the House of Delegates. In seconding the motion J. H. Beal stated, "it is understood, of course, that by referring these details to the House of Delegates, it does not prevent the Council from also giving consideration to the plan as far as it desires to do so." The mover stated that the action of the House of Delegates was subject to the approval of the Council.—Carried.

H. V. Arny submitted the following resolution from the Scientific Section to the House of Delegates, with the recommendation of the Section.

> *Resolved* that this organization will take part in the National Conference of Pharmaceutical Research and will appoint one delegate and three associates." I will say we want a good representation and we would like each association to send three associates, but it will be the delegates only who will have a vote, and each association will have equal voice.
>
> *Resolved*, that twenty dollars be appropriated to cover the dues of the first year.
>
> Carried.

The following resolution was read:

> *Resolved*, that the American Pharmaceutical Association approve House Resolution No. 258 providing for a select committee of fifteen to inquire into the subject of narcotic conditions in the United States, the personnel of the Committee to include all physicians now members of the House of Representatives.

The motion to adopt was amended by Clyde L. Eddy to read—"we urge also that all pharmacists who are now members of the House of Representatives be included on this Committee." Carried.

The Council Minutes as a whole, on motion of F. E. Stewart and seconded by Jacob Diner, and a vote, were then approved.

The report of the Committee on Nominations was then presented—John Culley, *Chairman*, and William B. Day, *Secretary:*

For President—H. V. Arny, New York; S. L. Antonow, Illinois; Frank Schachleiter, Arkansas.

For First Vice-President—L. F. Kebler, District of Columbia; J. H. Webster, Michigan; Otto Muhlhan, Ohio.

Second Vice-President—F. E. Bibbins, Indiana; E. R. Spease, Ohio; E. V. Howell, North Carolina.

Third Vice-President—W. Bruce Philip, California; Mathias Noll, Kansas; W. P. Porterfield, North Dakota.

Members of the Council—R. P. Fischelis, New Jersey; J. H. Beal, Illinois; Ambrose Hunsberger, Pennsylvania; Charles H. LaWall, Pennsylvania; John Culley, Utah; C. J. Clayton, Colorado; Caswell A. Mayo, Ohio; C. H. Packard, Massachusetts; E. V. Zoeller, North Carolina.

Mail ballot will be sent out before the first of the year, one candidate for each office to be elected and three members of the Council.

The report of the Nominating Committee was approved.

Treasurer E. F. Kelly read his report. (To be printed.) Former Treasurer H. M. Whelpley complimented his predecessor; he stated that Treasurer Kelly took up the treasurership in such a way that there was no interruption of Association business.

Chairman J. H. Beal of Headquarters Fund Committee presented the report for the Committee; he stated that the convention sessions had been so continuous that it had been impossible to have a meeting and, therefore, any member of the Committee was at liberty to take exception to anything said in the report. (The report is printed in this number of the JOURNAL.) The recommendations of the Committee, by vote, were concurred in.

REPORTS OF GENERAL COMMITTEES.

The report of the Committee on International Pharmaceutical Nomenclature was called for. Chairman A. G. DuMez stated that he had taken up the matter with the view of formulating a system of international pharmaceutical nomenclature with English-speaking countries, and that this was simply an informal report of progress.

Other reports of General Committees were called for. (Discussions will be printed with the reports, beginning with next issue of the JOURNAL. In these minutes, with few exceptions, they are given by title only for reference and check.) Reports, unless otherwise stated, were received.

Committee on Status of Pharmacists in Government Service.—Report by E. Fullerton Cook, Chairman. (See report and action thereon, page 763, this issue.)

Committee on Health Insurance.—Report by William C. Anderson.

Committee on National Legislation.—A. R. L. Dohme, *Chairman;* report presented by E. G. Eberle.

Committee on Patents and Trade Marks.—Reported by F. E. Stewart, *Chairman;* referred to the Committee on Research.

Special Committee on Pharmaceutical Ethics.—Chairman Charles H. LaWall reported that the code of ethics proposed by the Committee and a consideration of the report, in accordance with a provision made last year, was made a special order of business of the Section on Education and Legislation. He presented the code as agreed upon by the Section for approval of the Association.

On motion of Frank H. Freericks and seconded by F. E. Stewart the report was adopted, by vote.

E. G. Eberle moved that the principles of pharmaceutical ethics as reported and approved now become the Code of Ethics of the American Pharmaceutical Association.—Carried.

It was voted that the Code of Ethics of the American Pharmaceutical Association be printed in the JOURNAL and the YEAR BOOK; that a copy be sent to the Secretary of each state association; that a copy be sent to each Secretary of a board of pharmacy, and that the examining boards include in their examinations a few questions on the subject of pharmaceutical ethics; that a copy be sent to medical societies, to pharmaceutical publications. Summed up, it was voted that the widest possible publicity be given to the Code of Ethics of the American Pharmaceutical Association.

Committee on Pharmaceutical Syllabus.—Report by Theodore J. Bradley, *Chairman.* Received and referred to Council.

Committee on Physiological Testing.—Report by Paul S. Pittenger, *Chairman.* Increase of membership asked for approved; subject matter referred to U. S. P. and N. F. Committees.

Committee on U. S. Pharmacopoeia.—Report by Lyman F. Kebler, *Chairman.* Referred to U. S. P. and Revision Committees.

Committee on Closer Affiliation of Pharmacists and Physicians.—Report by Bernard Fantus. Referred to Council on account of recommendations made therein.

Committee on Local Branches A. Ph. A.—Report by Ivor Griffith, *Chairman.*

E. G. Eberle moved that when the meeting adjourned, the second General Session would reconvene at 3 o'clock P.M., Thursday, August 18.—Carried.

Committee on Model Pharmacy Law.—Report by Frank H. Freericks, *Chairman.*

It was moved that greetings of the Association be conveyed to Mr. Schellentrager, veteran Cleveland druggist.—Carried.

Telegrams were read by Secretary Day from Miss Mary A. Fein, and from the American Fair Trade League. The meeting was then adjourned to reconvene at 3 P.M., Thursday.

ADJOURNED SECOND GENERAL SESSION.

An adjourned Second General Session of the American Pharmaceutical Association was convened at 3.00 P.M., August 18, President S. L. Hilton presiding.

The Committee on Constitution and By-Laws.—Chairman J. H. Beal stated that the Committee had no report at present.

Committee on Weights and Measures.—Report of progress by H. V. Arny, *Chairman.* It was voted to re-affiliate with the American Metric Association.

Committee on Time and Place.—Report by Theodore J. Bradley, *Chairman.* He advised that a number of invitations had been received. The place of meeting the Committee decided to recommend was Asheville, N. C. Telegrams and other forms of invitation were received from the President of the state association, the local druggists' association, the Mayor, the President of the Rotary Club, the Chamber of Commerce and other organizations.

Secretary J. G. Beard of the North Carolina Association spoke for Asheville and its beauties; Arno Viehoever, who recently had been in Asheville attending a convention, spoke heartily in favor of acceptance of report.

Asheville was unanimously selected for the next meeting place.

Committee on the William Procter, Jr., Memorial Fund.—No report was rendered; Thomas D. McElhenie read a letter from Chairman John F. Hancock, in which he stated Treasurer E. F. Kelly would report on the amount of money in this fund.

Special Committee—American Joint, on Horticultural Nomenclature.—Report by Heber W. Youngken.

Coöperative Publicity Committee.—Report by R. P. Fischelis, read by Secretary Wm. B. Day. Referred to Council.

Committee to Coöperate with Committees from A. C. P. F. and N. A. B. P. to Obtain Prerequisite Legislation.—Report of progress by R. A. Lyman.

Committee on Membership.—Report by William B. Day, *Chairman.* He stated that the number of additions for the year would exceed six hundred, exceeded only once before and then in a 16-month period. About a hundred new members have come from Ohio, Illinois brought in about eighty, Mr. Noll had helped to double the membership in Kansas, the state of Washington had done well; usually, when going to a distant point, there is a spurt of accessions to the membership and, thereafter, a corresponding falling off; Louisiana held up its membership; some accessions were reported by Mr. Schertz.

President Hilton called for the submission of resolutions.

The following was presented from the Section on Education and Legislation:

"Your Committee appointed to consider and report on the paper presented by Dr. James H. Beal, begs leave to submit the following:

"That we appreciate the value of the suggestion carried by Dr. Beal's paper as being the foundation for the solving of the much-discussed and as yet unsolved question of the properly applied definition for a 'poison.'

"We, therefore, recommend that the section approve the recommendation made, namely that a Committee of five be appointed representing the following divisions—retail pharmacy, wholesale pharmacy, manufacturing pharmacy, pharmaceutical education, and someone representing the medical viewpoint; to formulate the schedule of poisons suggested by the paper. (Signed) C. A. Dye, *Chairman,*
William C. Anderson,
John M. Jordan."

The resolution was approved by the Association.

Resolutions from the House of Delegates were presented. The first related to the annual program. It was voted to refer this to the Committee on President's Address.

The following resolutions were approved and adopted by vote of the Association:

ALCOHOL FOR PHARMACEUTICAL PURPOSES.

Resolved, that many of the regulations for the enforcement of the Federal Prohibition Act are unduly complex and cumbersome and impose unnecessarily burdensome restrictions upon the professions of medicine and pharmacy, and upon the chemical and industrial arts, without placing any effective check upon illicit distilling, boot-legging, or the smuggling into the United States of large quantities of intoxicating liquors for beverage purposes.

Pure grain alcohol is as indispensable to the manufacture, purification and preservation of drugs, medicines and of many chemicals as are iron ore and coke to the manufacture of iron and steel.

Under existing conditions it is sometimes very difficult to procure sufficient pure grain alcohol for the most necessary of pharmaceutical and chemical operations, while those who dispense intoxicating liquors illegitimately apparently experience no serious difficulty in renewing their supply as frequently as needed.

THE DISPENSING OF MEDICINAL LIQUORS.

The use of pure grain alcohol in the manufacture and compounding of drugs, medicines and chemicals is in a different catagory from the use of whiskey, brandy, etc., when prescribed by physicians for medicinal purposes, without further medication.

In the opinion of the Association the misuse of liquors of the latter class can be largely controlled by the exercise of proper care in the granting of permits by The Prohibition Unit at Washington. This Association endorses the recommendation adopted by the Executive Committee of our sister association, The National Association of Retail Druggists, that permits to dispense these liquors should not be granted to pharmacies that have not been in existence for a period of at least one year, and that such permits should be refused to all pharmacists who have been clearly proved to have dispensed such liquors for other than strictly medicinal purposes.

STEPHENS-KELLY BILL.

Resolved, that this Association reaffirms its approval of the Stephens-Kelly Bill (H.R. 11) now pending in Congress, provided and with the understanding that it shall be passed in such form as will prevent unjust discrimination between retail dealers, and provided also that it shall not permit the creation of monopolies prejudicial to public interest.

THE BETTER CORRELATION OF PHARMACEUTICAL ORGANIZATIONS.

The House of Delegates approves the general tenor of the "Report on the Better Correlation of Pharmaceutical Organizations" referred to it by the Ohio State Pharmaceutical Association, as follows:

1. That local county and city pharmaceutical organizations should as far as practicable be directly affiliated with the state pharmaceutical associations of their respective states.

2. That all state pharmaceutical associations should be affiliated with and should regularly be represented by delegates at the annual conventions of the A. Ph. A. and N. A. R. D.

3. That at the annual meetings of the state associations at least one session should be devoted to the consideration of A. Ph. A. affairs and related topics, and at least one session to the consideration of the affairs of the N. A. R. D. and to matters connected with the workings of the latter association.

JOINT MEETINGS OF A. PH. A. AND N. A. R. D. EXECUTIVE COMMITTEES.

In order to better correlate the activities and promote the harmonious coöperation of the two Societies, it is recommended that the Executive Committees of the American Pharmaceutical Association and the National Association of Retail Druggists hold an annual conference with each other, meeting alternately at the annual conventions, that is, the Executive Committees shall one year meet with the A. Ph. A. and the next year with the N. A. R. D.

Vice-President Hugo H. Schaefer presided during the consideration of the report of the Committee on President's address; it follows:

Report of Committee on President's Address.

Your Committee has given careful study to the admirable address of our President. We wish to congratulate the Association upon the fine enunciation of the ideals of American Pharmacy contained in the address and we wish to report upon the specific recommendations of the President as follows:

Recommendation No. 1.—We concur with the President as to publication in the JOURNAL of lists of officers but recommend that the proposition be elaborated so as to read:

That there appear in *each* issue of this JOURNAL a list containing the names of the officers and *of the members of Committees* of the Association.

Recommendation No. 2.—While we approve of the principle that the Procter Memorial should take the shape of a Procter Library, or a Procter Laboratory or a Procter Museum in the proposed A. Ph. A. Headquarters, we recommend that the matter be thoroughly discussed with the members of the Committee on Procter Memorial Fund before definite action is taken thereon.

Recommendation No. 3.—While we concur in the President's recommendation that steps be taken to secure more uniform state Narcotic Laws, we recommend that our Committee on State and National Legislation be empowered to coöperate with the legislative committee of the several state pharmaceutical associations and with the House of Delegates to secure such uniformity.

Recommendation No. 4.—While we realize the potential danger to Pharmacy presented by the liquor situation, we feel that, in view of the resolutions of the American Medical Association, which recognizes alcohol as a medicinal agent, it would be establishing a dangerous precedent to approve of the proposition that the Government take over the dispensing of this medicinal agent. One of the immediate consequences would be the assumption by the Government of control of the dispensing of the 18 U. S. P. and N. F. preparations now classified by the prohibition authorities as being fit for use as alcoholic beverages; thus markedly interfering with the dispensing by retail pharmacists of legitimate prescriptions. Moreover, turning over to the Government the dispensing of one medicinal agent—alcohol—may lead to similar action with reference to other drugs.

Recommendation No. 5.—The President's recommendation as to premedicated alcohol is approved.

Recommendation No. 6.—The President's recommendation has two clauses:

As to securing more pharmaceutical publicity, your Committee endorses the proposition and points out that the Association should do its utmost to support the efforts being made by our Coöperative Publicity Committee and by the Drug Trade Board of Public Information, which was founded by our Association and in which our Association has able representation in our delegate, Dr. Robert P. Fischelis.

As to the President's recommendation that we endeavor to eliminate the specific names of poisons from news items, your Committee endorses the proposition and would further recommend that steps be taken to persuade newspapers to employ some other word than "drug" to designate narcotics.

Recommendation No. 7.—The President's recommendation that the Publication Committee inaugurate an N. F. publicity campaign is approved.

Recommendation No. 8.—The President's recommendation that the attention of the American Conference of Pharmaceutical Faculties be called to the need for better educated scientific hospital pharmacists is approved.

Recommendation No. 9.—Has already been acted upon by the Association.

Recommendation No. 10.—The President's recommendation that we continue our affiliation with the National Drug Trade Conference is approved but to this recommendation your Committee desires to add the recommendation that the Association take similar action concerning the Drug Trade Board of Public Information.

Recommendation No. 11.—The President's recommendation as to our support of the work of the National Association of Boards of Pharmacy and of the American Conference of Pharmaceutical Faculties is not only approved, but your Committee desires to go further in accomplishing this purpose by recommending that the Association declare that at future meetings no A. Ph. A. sessions shall be set earlier than Tuesday evening, leaving Monday and Tuesday for meetings of the Association of Boards and of the Conference of Faculties. Furthermore, that steps be taken to instruct future local secretaries to have during those two days no entertainments interfering with the business sessions.

(Signed) H. V. ARNY, *Chairman*,
CHARLES H. LAWALL,
JACOB DINER,
JULIUS A. KOCH,
H. M. WHELPLEY.

The foregoing sections of the report were read seriatim and approved, and then motion made to adopt as a whole.

E. G. Eberle stated that during the reading of Recommendation 1, a member was speaking to him and he failed to note action thereon. He called attention to the fact that a complete roster was printed annually and that six pages were required without the inclusion of Council committees, and also stated that a list of officers had been published several times each year; that the printing in each issue of the complete roster involved considerable expense.

H. V. Arny stated this was realized by the Committee and its members went so far as to suggest the advisability of bringing the matter to the attention of the Council—that this expense should not be charged against the JOURNAL.

J. H. Beal asked what the approximate cost of printing these pages would be annually. The Editor stated, probably $350.00. The number of pages could be reduced and the expense correspondingly so.

President S. L. Hilton stated that he had included the recommendation of the Committee in his address, but, on consulting with the Editor, modified the recommendation.

J. H. Beal asked whether it would not answer the purpose to print the complete roster once or twice annually and supply members with a reprint.

L. F. Kebler thought printing the roster once or twice annually and a reference in each issue as to where the roster might be found would answer the purpose.

H. V. Arny stated that the list of officers and committees is printed in the *Journal of the American Chemical Society* each month, and if our roster was set in very small type the cost would be reduced materially—that this was service for the Association for which the JOURNAL should receive due credit.

The Editor admitted that the cost could be cut down by condensing the matter; he was not so much concerned as far as the JOURNAL entered, but he was safeguarding and holding down the expenses of the Association at all times, and when an expense was incurred the members should be informed. This was his only purpose in bringing up the question.

Secretary Wm. B. Day stated that it was proposed to print the Code of Ethics in the form of a booklet; would it be a solution of the problem to include the roster?

Charles H. LaWall replied that this would not serve the same purpose.

Ambrose Hunsberger, speaking from experience as an officer in another organization, favored the Committee's suggestions. Others also spoke relative to the subject, and, after the close of the discussion, a vote was called for to approve the report of the Committee as a whole. It was so voted.

The final resolution from the House of Delegates was then called for and approved.

> *Resolved*, that it is the sense of the House of Delegates that meetings of the several Sections of the Association should not be held simultaneously with the general sessions of the Association or simultaneously with the sessions of the House of Delegates, and that instructions to this effect be given by the Council to those who are charged with the preparation of the program for the Convention in 1923.

Recording Secretary Jeannot Hostmann of the House of Delegates presented the minutes of that body.

On motion of J. H. Beal, a second and vote, the minutes were received.

President Hilton appointed the following members on a Committee to prepare suitable resolutions conveying thanks to Cleveland friends and members for the royal entertainment given the visitors: Ivor Griffith, William C. Anderson, Caswell A. Mayo.

The following resolution was presented by Clyde L. Eddy, and adopted by the Association:

NARCOTIC DRUG ADDICTION.

> WHEREAS, It has become apparent that the existing narcotic drug situation in the United States is due in part to a lack of adequate and correct general information on the subject and to uninformed or misinformed public opinion, and
>
> WHEREAS, Much of the information concerning narcotic drugs and narcotic drug addiction which appears in the daily press and elsewhere is misleading or incompetent or purely sensational in nature, and

WHEREAS, The similarity of the statements that appear almost regularly in the newspapers inclines us to the belief that many of them emanate from the same source and that they are part of an organized propaganda intended to give publicity to the morbid aspects of drug addiction and to vilify the legitimate distributors of narcotic drugs for the sole purpose of creating an insistent public demand for more restrictive narcotic laws,

Therefore Be It Resolved, That the American Pharmaceutical Association hereby protests against the publication of further matter of this kind without full investigation into the character and competency of its origin and its possible hidden purpose and its effects, and without due recognition of the facts and information which it ignores or obscures.

The Second General Session of the American Pharmaceutical Association was then adjourned.

FINAL GENERAL SESSION.

The Final General Session of the American Pharmaceutical Association was convened at 8.30 P.M., August 18, by President S. L. Hilton.

Secretary William B. Day read the minutes of the Second General Session; they were approved.

Committee on Endowment Funds.—Report by H. M. Whelpley. He stated that in view of the work of the Committee on Permanent Headquarters, the Committee on Endowment Funds decided not to make any special efforts at this time, feeling that it would interfere with the results of the former Committee. He also moved that this Special Committee be discontinued for the time. It was so voted.

President Hilton announced that Mr. E. R. Selzer desired to make a report. Mr. Selzer stated that it was his privilege to participate in several functions this week, and one of the most pleasant was the opportunity afforded him this evening. Continuing, he said: "I listened with a great deal of interest to the report of Chairman J. H. Beal on the progress toward establishing permanent headquarters for the American Pharmaceutical Association. I was very sorry to hear that the highest single contribution only amounted to $250.00, and it is now my privilege to make a donation to the fund."

Chairman Beal replying to the donor and addressing him and the members said: "I have been given a bill of a larger denomination than I am accustomed to handle—a five hundred dollar bill, accompanied by a card which is signed by the Cleveland Branch of the American Pharmaceutical Association."

Chairman Beal continued by saying:

"At this moment I am not able to command words to show our gratification on behalf of the Association for this very munificent contribution. You all recognize that it is in perfect keeping with the records of the members of the Local Branch, and the members of the local Committee on Entertainment. I again, on behalf of the Association, tender our very heartiest thanks."

He also referred to the quiet energy and zeal of Mr. Selzer.

The following resolution was adopted by a rising vote:

WHEREAS, The Social and Entertainment features of the American Pharmaceutical Association Meetings tend to increase interest in our Organization and foster a spirit of good-will and coöperation, and

WHEREAS, The delightful character and the full program of entertainment provided at this meeting by the Local Committees and by those who have joined with them in making these features so successful have thoroughly demonstrated the unique Cleveland hospitality so often referred to,

Therefore Be It Resolved, That the American Pharmaceutical Association in Convention Assembled register its thanks for and appreciation of the delightful impressions which it has received during its stay in Cleveland, and for the pleasant memories which visiting members carry away with them.

(Signed) { CASWELL A. MAYO,
WILLIAM C. ANDERSON,
IVOR GRIFFITH, *Chairman*.

AWARD OF THE EBERT PRIZE.

Chairman H. V. Arny of the Ebert Prize Committee, being called upon by President Hilton, stated that after a careful study of all the papers which have been presented to the Scientific Section, the Committee on Ebert Prize has awarded the Ebert Prize to Prof. Wilbur L. Scoville, for the year 1922. He heartily congratulated him.

Caswell A. Mayo called attention to the fact that Council had provided that the Ebert Prize should be formally awarded at the closing session of the Association; that it was a matter that ought to be given public recognition.

In replying the recipient said:

"I suppose that no man who writes a paper has any idea of a prize in his mind. I want to say one thing about this occasion, and that is, I felt for some years that I would like to see the Ebert Prize go to one who wrote the best paper on a pharmaceutical subject. It has been awarded in the past for chemical subjects and for bacteriological subjects in Pharmacy, but those of you who remember Mr. Ebert will remember also that he was known as Professor Ebert, and the numerous times in which he would get up before the meetings and say, 'Oh! you Professors, we want something practical for Pharmacy,' and I really think that Mr. Ebert would feel glad if the prize could be secured on a paper for simple Pharmacy—an old-fashioned pharmaceutical subject, such as percolation or extraction, and yet I feel doubly proud to think that this year at least a pharmaceutical subject has been considered of such merit as to warrant this prize. I thank you."

W. F. Rudd said he did not know he was a prophet or the son of a prophet; however, a year ago at the New Orleans meeting of the American Pharmaceutical Association, on the boat ride, he was sitting with Professor and Mrs. Scoville and, in conversation relating to the paper for which the award was made, prophesied that this year Professor Scoville would receive the prize.

H. M. Whelpley stated that Mr. Ebert was elected President of the Association in Cleveland. He gave the $500.00 with the idea of encouraging scientific research in pharmacy, as emphasized by Professor Scoville. The Ebert Prize has been awarded many times during the last 50 years, but notwithstanding these awards the fund has grown to about $1200.00.

Secretary A. G. DuMez read the minutes of the Council. They were approved.

President S. L. Hilton requested Ex-President Caswell A. Mayo to introduce the officers of the ensuing year. It was a somewhat unusual occurrence to have all the officers present during an annual convention. They are: President, Julius A. Koch; Honorary President, Thomas D. McElhenie; First Vice-President, E. N. Gathercoal; Second Vice-President, Lyman F. Kebler; Third Vice-President, Clyde L. Eddy; Members of the Council—Charles E. Caspari, S. L. Hilton and W. L. Scoville; General Secretary of the Association and Recording Secretary of the House of Delegates, William B. Day; Treasurer of the A. Ph. A., and Chairman of the House of Delegates, E. F. Kelly; Secretary of the Council and Reporter on the Progress of Pharmacy, A. G. DuMez; Local Secretary, J. G. Beard; Editor of the JOURNAL A. PH. A., E. G. Eberle.

Mr. Mayo introduced the officers in his usual happy style, showing his acquaintance with the characteristics of the individuals.

President Hilton installed the President-elect and in well-chosen words introduced him to the membership, and wished for him a successful year of office. President Julius A. Koch in accepting the gavel said that three thoughts were paramount in his mind—that the highest honor in the gift of American Pharmacy had been conferred upon him, this honor he appreciated in full; that he was among many dear friends, for this he was thankful; that he was assuming great responsibility that required study and careful thought on his part; he promised attendance to duties and a discharge of them according to the best of his abilities, and asked for consideration on the part of the membership and helpful coöperation in the service of the Association.

On motion the seventieth annual meeting of the American Pharmaceutical Association was then adjourned.

REORGANIZATION PLAN OF THE AMERICAN
CLEVELAND,
AMERICAN PHARMACEU-
GENERAL SESSIONS: 1. Receive President's
2. Receive the report
House can be negatived at a general session by a
3. Transact such other
ENTIRE MEMBERSHIP: Elect by mail ballot
(Privilege of voting is

Legislative & Business Organization.

House of Delegates.

Membership.

(Only members of the American Pharmaceutical Association in good standing, who have held membership for 2 years or more, are eligible.)

U. S. Army, 1, U. S. Navy, 1.

U. S. Pub. Health Service, 1.

Sections of the A. Ph. A. (Scientific, Education and Legislation, Practical Pharmacy and Dispensing, Commercial, Historical), 1 each elected by the respective sections.

National Associations, to be admitted on application after approved by Judicial Committee, one (1) each.

State Associations, 1 for each 500 dues-paid members of the A. Ph. A. When the membership is less than 500, there shall be 1 delegate.

Local Branches of the American Pharmaceutical Association of not less than 50 dues-paid members of the A. Ph. A., holding not less than 6 meetings annually with an attendance of not less than 15 at each meeting, 1 delegate each.

Officers.

Chairman.

Vice-Chairman.

The General Secretary shall act as Secretary.

Duties.

1. Elect:
   a. Chairman and Vice-Chairman of the House.
   b. Secretary and Treasurer of the Association on nomination of Board of Directors.
2. Nominate:
   a. President.
   b. Directors.
3. Ratify Special Committees nominated by the Chairman of the House.
4. Receive reports of General Officers, Standing and Special Committees.
5. Select time and place of annual meetings.
6. Transact all general business of the Association not otherwise provided for, in the Constitution and By-Laws.

Board of Directors.

Membership.

(Only members of the A. Ph. A. in good standing, who have held membership for 5 years or more, are eligible. A member of the Board shall not be an officer of the House of Delegates.)

9 members, 3 elected annually to serve for 3 years.

President, ex-officio with vote.

Secretary, ex-officio without vote.

Treasurer, ex-officio with vote.

Officers.

Chairman, Vice-Chairman, Secretary } Chosen from the members of Board of Directors.

Duties.

1. Shall have charge and supervision of all property, funds, finances and publications.
2. Appoint the editors (including the Editor of the Year Book) and necessary assistants.
3. Appoint the Local Secretary.
4. Nominate the Secretary.
5. Nominate the Treasurer.
6. Fix the salaries of officers.
7. Prepare annual budget.
8. Take over functions of the present Council not otherwise provided for.
9. Have seats in the House with the right to vote.
10. Act for the Association and the House in interim between meetings.
11. Ratify Standing Committees.

Standing Committees.

(Nominated by the President and ratified by the Board of Directors, unless otherwise provided for.)

1. Judicial Committee.
2. Board of Canvassers.
3. Committee on Membership.
4. Committee on State and National Legislation.
5. Committee on U. S. P.
6. Committee on N. F.
7. Committee on Recipe Book.
8. Committee on Syllabus.
9. Committee on Pharmaceutical Research.
10. Committee on Ebert Prize.
11. Committee on Local Branches.

This plan shall become effective when 20 State Associations have given definite notice of their acceptance and that they will come in with at least 10% of their membership, but the representa-

PHARMACEUTICAL ASSOCIATION, APPROVED AT
OHIO, AUGUST 17, 1922.

TICAL ASSOCIATION

address and refer it to the House of Delegates.
of the House of Delegates. Action taken by the
vote of not less than 50 members present and voting.
general business as may be presented.
the President and Directors.
limited to dues-paid members in good standing.)

GENERAL OFFICERS.

(Elected annually to serve for a term of 1 year or until their successors are elected.)

President. (In the case of death, absence, or in capacity of the President, the Board of Directors shall elect a President pro tem to serve until the next annual election.)

Vice-Presidents, Chairmen of the Sections.

Secretary (full-time).

Treasurer.

Duties of President.

1. Preside at general sessions.
2. Prepare annual address.
3. Nominate Standing Committees and submit the names of the nominees to the House for ratification immediately after inauguration.
4. Ex-officio member of the Board of Directors.

Duties of Vice-President.

1. Assist the President in the performance of his duties.

Duties of the Secretary.

1. Keep the minutes of the general sessions.
2. Keep the minutes of the House.
3. Verify the credentials of members of the House.
4. Prepare for publication the official program.
5. Give notice of the time and place of annual and special meetings of the Association and House.
6. Notify officials of their election and committee members of their appointment.
7. Shall collect the dues of members.
8. Shall revise the roll of members.
9. Perform other duties directed by the House or Board of Directors.
10. Ex-officio member Board of Directors without vote.

Duties of the Treasurer.

1. Shall be custodian of all moneys, securities and deeds and shall hold same subject to the direction and disposition of the Board of Directors.
2. Ex-officio member of the Board of Directors.

SCIENTIFIC AND PROFESSIONAL ORGANIZATION.

SECTIONS.

1. Scientific.
2. Education & Legislation.
3. Practical Pharmacy & Dispensing.
4. Commercial.
5. Historical.

PROPOSITIONS GOVERNING DISCUSSIONS ON REORGANIZATION OF A. PH. A.

In Council A. Ph. A., at Cleveland Meeting the following propositions were accepted as binding in all discussions of the so-called plan of reorganization of the A. Ph. A., presented by its Executive Committee:

1. That a reorganization of the plans and purposes of the A. Ph. A., as at present constituted, is neither necessary nor desirable.
2. That the creation of other pharmaceutical societies both state and national was a natural step in the process of evolution and that the existence of such independent organizations, all of which are either directly or indirectly the descendants of the A. Ph. A., is necessary to the proper representation of the separate branches of pharmacy which they severally represent.
3. That the A. Ph. A. is from principle opposed to any measures tending to destroy the identity or lessen the independence of these separate organizations. But on the contrary recognizes a duty to do what it legitimately can to aid in advancing their dignity, importance and usefulness.
4. That we recognize fully the great importance to the welfare of pharmacy of the harmonious coöperation of all pharmaceutical organizations, local, state and national, and believe that such harmonious coöperation can best be secured by providing for their closer relationship with each other by giving them proper representation in the working activities of the mother association of them all—the AMERICAN PHARMACEUTICAL ASSOCIATION.

Special Committees.

(Nominated by Chairman of the House and ratified by the House or Board of Directors in the interim between meetings, unless otherwise provided for.)

1. Committee on Health Insurance.
2. Committee on Coöperative Publicity.
3. Committee on Patents and Trade-Marks.
4. Committee on Procter Memorial.
5. Committee on International Pharm. Nomenclature.
6. Committee on Physiological Testing.
7. Committee on Status of Pharmacists in the Government Service.

tion of any State Association in the House of Delegates automatically ceases if its membership in the American Pharmaceutical Association has not been raised to at least 51% in 5 years.

COMMITTEE REPORTS

COMMITTEE ON A. PH. A. HEADQUARTERS BUILDING.

REPORT OF PROGRESS.*

The special committee appointed to procure funds for the erection and equipment of a permanent home for the Association respectfully reports as follows:

As the Committee was appointed without instructions it began its work by submitting for the approval of the Council the following plan of procedure:

1. That the Committee on Permanent Home be authorized to appoint such sub-committees and teams for the solicitation of subscriptions as it may deem necessary.

2. That all subscriptions be made payable to the Treasurer of the A. Ph. A. and kept as a separate fund, and deposited on interest in a bank approved by the Finance Committee, or invested in U. S. Government or other public securities capable of quick realization in the form of cash.

3. That all interest accumulations be added to the principal of the original subscribed fund.

4. That the money obtained by subscription be devoted exclusively to the purchase or erection and equipment of said home, or to an Endowment Fund for the maintenance of the same; and that no part of such original fund shall ever be used for current expenses or for any other purposes than those above indicated.

5. That the matter of the selection of the city for the location of the Home be postponed until a fund sufficient in the opinion of the Council to erect and equip such a home shall have been accumulated.

Probably the only portion of the preceding plan which requires explanation is that found in proposition No. 5, which is that the selection of the city in which the proposed Home is to be located be deferred until an amount sufficient to erect such Home shall have been subscribed. This proposition was agreed upon for the reason that immediately upon the appointment of the committee, efforts were made to pledge certain of its members to lend their efforts toward securing the selection of certain cities; whereas the committee felt that the selection of such location should be left to the free choice of the whole Association, to be ascertained in some appropriate manner at the time when the Association was prepared to purchase or enter upon the erection of such building.

In addition to the above plan, which was approved by the Council, the Committee adopted certain rules to govern its operation which may be briefly set forth as follows:

1. That in soliciting funds the title "A. Ph. A. Headquarters Building" be used instead of Permanent Home, in order to avoid confusion with various other projects such as the proposed "Druggists' National Home," for indigent druggists and drug clerks, which is being sponsored by the National Association of Drug Clerks.

2. That the members of the A. Ph. A. should be first thoroughly canvassed for subscriptions before making any active attempt to solicit contributions from other sources.

3. That July 1, 1923, be adopted as the final date for the payment of subscriptions. This was adopted with the understanding that, with the consent of Council, the date for final payment might be postponed until some later period.

4. The following form of subscription was adopted:

> "The undersigned hereby subscribes the sum of $.... towards the purchase of a site and the erection and equipment of a permanent Headquarters Building for the use of the American Pharmaceutical Association.
>
> "It is understood and agreed that no part of the sum hereby subscribed is to be used for any other purpose than that above specified, except that any portion of

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* The report of the Committee was approved in General Session August 17, 1922. It was presented by Chairman J. H. Beal.

Note—Further subscriptions have been made since the report was adopted—The Cleveland Branch A. Ph. A. donated $500.00. (See also page 662, this issue.)

the subscribed sum not required for building and equipment may be invested as a building endowment fund and the income applied to the maintenance of said Headquarters Building.

"Said subscription is to be payable to the Treasurer of the American Pharmaceutical Association on or before July 1, 1923.

"The subscriber prefers to make payments as follows:"

It was not thought advisable to put the form of subscription in the form of a promissory note, as it was believed that the Association would not attempt to enforce such subscriptions in instances where the subscribers were not perfectly willing to pay them.

5. The Committee deemed it advisable not to settle upon any specific amount of money to be raised at that time, preferring to leave this matter to be determined after the willingness and ability of the members to come forward with subscriptions had been tested.

The active work of soliciting subscriptions was begun by sending to every member of the Association, in connection with the annual ballot for officers of the Association, a subscription card accompanied by a circular letter explaining the project and soliciting subscriptions.

Of the 3000 cards thus sent out 75 were returned with subscriptions aggregating $2,614.50, a sum which is certainly far below what might reasonably have been expected from a membership so large and so well able to contribute to the enterprise.

Since that time the Chairman of the Committee has sent out approximately 800 personal letters accompanied by subscription cards, in response to which there have been received subscriptions aggregating approximately $2,722.40.

Of the 800 members personally written to by the Chairman, less than six per cent have replied either with subscriptions or with reasons for not subscribing.

The total subscriptions received up to the date of the preparation of this report amount to $5,336.90. Of this amount $1,003.00 was remitted in cash or checks, all of which has been paid over to the Treasurer for credit to the Building Fund.

Only two subscriptions in excess of one hundred dollars have been received, one being for $150 and one for $250.

The most usual excuse given for failing to subscribe or for making only small subscriptions is that of poor business during the past year and the uncertainty of business in the future. Several have declined to subscribe on the ground that they have not been properly treated by the Association; several object to the proposed plan of reorganization of the Association and will not subscribe unless that plan is defeated; others will not subscribe for fear that the building will be located at some particular city which they do not approve of, and so on.

While the Committee has been disappointed at the rather slender list of subscriptions received, it believes that the project will continue to grow in favor and that much better results may be hoped for during the coming year, and after it begins an active canvass of those who are not members of the Association.

Several questions which the Council might at this time appropriately consider are as follows:

1. Should the Association now settle upon a gross amount of subscriptions that the Committee should attempt to secure?

2. Shall the city in which the proposed building is to be erected be now determined upon, or shall its selection be left until some future time?

The Committee is of the opinion that it would be advisable to wait until approximately the amount necessary to erect or purchase a Headquarters Building has been secured, and then submit the names of the competing cities first to the subscribers to the Fund for an expression of their choice, and after these have expressed their preference, then submit the subject to the entire membership of the Association for final determination.

COMMITTEE ON A. PH. A. HEADQUARTERS BUILDING.

J. H. Beal, *Chairman* { Summer address—801 W. Nevada St., Urbana, Ill. / Winter address—Camp Walton, Fla.

John G. Godding, 278 Dartmouth St., Boston, Mass.

Leonard A. Seltzer, 60–64 Adams St., W., Detroit, Mich.

E. L. Newcomb, 719—6th Ave., S. E., Minneapolis, Minn

Chas. H. LaWall, 636 Franklin Square, Philadelphia, Pa.
H. S. Noel, 4335 Park Ave., Indianapolis, Ind.
Wm. B. Day, 701 S. Wood St., Chicago, Ill.
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CODE OF ETHICS OF THE AMERICAN PHARMACEUTICAL ASSOCIATION.

(Adopted August 17, 1922.)

CHAPTER I.

The Duties of the Pharmacist in Connection with His Services to the Public.

Pharmacy has for its primary object the service which it can render to the public in safeguarding the handling, sale, compounding and dispensing of medicinal substances.

The practice of pharmacy demands knowledge, skill and integrity on the part of those engaged in it. Pharmacists are required to pass certain educational tests in order to qualify under the laws of our states. The states thus restrict the practice of pharmacy to those persons who by reason of special training and qualifications are able to qualify under regulatory requirements and grant to them privileges necessarily denied to others.

In return the states expect the Pharmacist to recognize his responsibility to the community and to fulfil his professional obligations honorably and with due regard for the physical and moral well-being of society.

The Pharmacist should uphold the approved legal standards of the United States Pharmacopoeia and the National Formulary for articles which are official in either of these works, and should, as far as possible, encourage the use of these official drugs and preparations and discourage the use of objectionable nostrums.* He should sell and dispense only drugs of the best quality for medicinal use and for filling prescriptions.

He should neither buy, sell nor use substandard drugs for uses which are in any way connected with medicinal purposes.

The Pharmacist should be properly remunerated by the public for his knowledge and skill when used in its behalf in compounding prescriptions, and his fee for such professional work should take into account the time consumed and the great responsibility involved as well as the cost of the ingredients.

The Pharmacist should not sell or dispense powerful drugs and poisons to persons not properly qualified to administer or use them, and should use every proper precaution to safeguard the public from poisons and from all habit-forming medicines.

The Pharmacist, being legally entrusted with the dispensing and sale of narcotic drugs and alcoholic liquors, should merit this responsibility by upholding and conforming to the laws and regulations governing the distribution of these substances.

The Pharmacist should seek to enlist and merit the confidence of his patrons and when this confidence is won it should be jealously guarded and never abused by extortion or misrepresentation or in any other manner.

The Pharmacist should consider the knowledge which he gains of the ailments of his patrons and their confidences regarding these matters, as entrusted to his honor, and he should never divulge such facts unless compelled to do so by law.

The Pharmacist should hold the health and safety of his patrons to be of first consideration; he should make no attempt to prescribe or treat diseases or strive to sell drugs or remedies of any kind simply for the sake of profit.

He should keep his pharmacy clean, neat and sanitary in all its departments and should be well supplied with accurate measuring and weighing devices and other suitable apparatus for the proper performance of his professional duties.

It is considered inimical to public welfare for the Pharmacist to have any clandestine arrangement with any Physician in which fees are divided or in which secret prescriptions are concerned.

The Pharmacist should primarily be a good citizen, and should uphold and defend the laws of the state and nation. He should inform himself concerning the laws, particularly those relating to food and drug adulteration and those pertaining to health and sanitation and should

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* An objectionable nostrum is one which does not meet the requirements of the definition of the Commission on Proprietary Medicines of the American Pharmaceutical Association.

always be ready to coöperate with the proper authorities having charge of the enforcement of the laws.

The Pharmacist should be willing to join any constructive effort to promote the public welfare and he should regulate his public and private conduct and deeds so as to entitle him to the respect and confidence of the community in which he practices.

CHAPTER II.

The Duties of the Pharmacist in His Relations to the Physician.

The Pharmacist even when urgently requested so to do should always refuse to prescribe or attempt diagnoses. He should, under such circumstances, refer applicants for medical aid to a reputable legally qualified Physician. In cases of extreme emergency as in accident or sudden illness on the street in which persons are brought to him pending the arrival of a Physician such prompt action should be taken to prevent suffering as is dictated by humanitarian impulses and guided by scientific knowledge and common sense.

The Pharmacist should not, under any circumstances, substitute one article for another, or one make of an article for another in a prescription, without the consent of the Physician who wrote it. No change should be made in a Physician's prescription except such as is essentially warranted by correct pharmaceutical procedure, nor any that will interfere with the obvious intent of the prescriber, as regards therapeutic action.

He should follow the Physician's directions explicitly in the matter of refilling prescriptions, copying the formula upon the label or giving a copy of the prescription to the patient. He should not add any extra directions or caution or poison labels without due regard for the wishes of the prescriber, providing the safety of the patient is not jeopardized.

Whenever there is doubt as to the interpretation of the Physician's prescription or directions, he should invariably confer with the physician in order to avoid a possible mistake or an unpleasant situation.

He should never discuss the therapeutic effect of a Physician's prescription with a patron nor disclose details of composition which the Physician has withheld, suggesting to the patient that such details can be properly discussed with the prescriber only.

Where an obvious error or omission in a prescription is detected by the Pharmacist, he should protect the interests of his patron and also the reputation of the Physician by conferring confidentially upon the subject, using the utmost caution and delicacy in handling such an important matter.

CHAPTER III.

The Duties of Pharmacists to Each Other and to the Profession at Large.

The Pharmacist should strive to perfect and enlarge his professional knowledge. He should contribute his share toward the scientific progress of his profession and encourage and participate in research, investigation and study.

He should associate himself with pharmaceutical organizations whose aims are compatible with this code of ethics and to whose membership he may be eligible. He should contribute his share of time, energy and expense to carry on the work of these organizations and promote their welfare. He should keep himself informed upon professional matters by reading current pharmaceutical and medical literature.

He should perform no act, nor should he be a party to any transaction, which will bring discredit to himself or to his profession or in any way bring criticism upon it, nor should he unwarrantedly criticise a fellow Pharmacist or do anything to diminish the trust reposed in the practitioners of pharmacy.

The Pharmacist should expose any corrupt or dishonest conduct of any member of his profession which comes to his certain knowledge, through those accredited processes provided by the civil laws or the rules and regulations of pharmaceutical organizations, and he should aid in driving the unworthy out of the calling.

He should not accept agencies for objectionable nostrums nor allow his name to be used in connection with advertisements or correspondence for furthering their sale.

He should courteously aid a fellow Pharmacist who may request advice or professional information or who, in an emergency, needs supplies.

He should not aid any person to evade legal requirements regarding character, time or practical experience by carelessly or improperly endorsing or approving statements relating thereto.

He should not imitate the labels of his competitors nor take any other unfair advantage of merited professional or commercial success. When a bottle or package of a medicine is brought to him to be refilled, he should remove all other labels and place his own thereon unless the patron requests otherwise.

He should not fill orders which come to him by mistake, being originally intended for a competitor.

He should deal fairly with manufacturers and wholesale druggists from whom he purchases his supplies; all goods received in error or excess and all undercharges should be as promptly reported as are shortages and overcharges.

He should earnestly strive to follow all proper trade regulations and rules, promptly meet all obligations and closely adhere to all contracts and agreements.

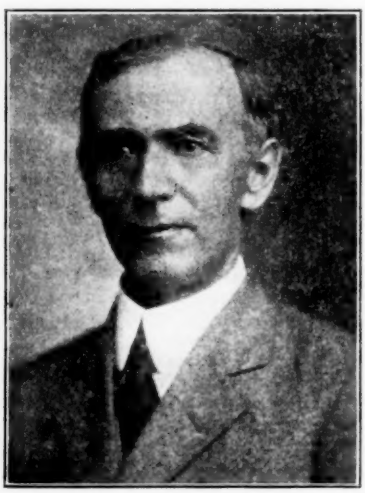
THE DEPARTMENT OF THE AMERICAN CONFERENCE OF PHARMACEUTICAL FACULTIES

PRESIDENTIAL ADDRESS.

AMERICAN CONFERENCE OF PHARMACEUTICAL FACULTIES.

BY CLAIR A. DYE.

When we stop to recall that this meeting marks the opening of the twenty-third annual session of the Conference we cannot fail to realize that the years intervening have been worth while, else the Conference would not have reached its present position in directing pharmaceutical education. It is true that the advance has not been as rapid as some of us would have had it, nor ha ve we attained the position in the pharmaceutical field educationally that we feel we should have. Nevertheless, when we recall that the first efforts toward the establishment of an organization of the schools failed miserably, we cannot but feel that a distinct progress has been made. When we trace the development of this formative period we should not forget to pay tribute to the influence exerted by the strong personality and wise guidance of those who have occupied this office in the past. It is largely through their efforts that the Conference has passed through some troublesome periods into its present promising position. The evidence bearing out these facts is, we believe, to be found in the various presidential addresses presented in the past. On reading these one is at once impressed by the problem discussed and the recommendations made. Indeed it seems that there were few topics bearing on the welfare and future of the Conference, and of pharmacy, that have been overlooked. The passing years have, of course, brought new problems, but the fact remains that many of the topics discussed and not a few of the recommendations made are pertinent at the present time and could be profitably discussed at this meeting. We have often tried to picture the position of the Conference and the place educationally and otherwise that pharmacy would be occupying, at this time, had these recommendations been carried out. I am sure all will agree that it would have been such that we would not have to offer excuses for our shortcomings or our educational requirements.



CLAIR A. DYE.

While it is rue that many of the suggestions and recommendations were idealistic and visionary and impossible the fact remains that without a vision of the future position of pharmacy and an ideal goal to be reached, progress is impossible. Even so there were many suggestions made that were not only practical, but possible and certainly would have done much for the Conference and for pharmacy. And what may we ask has become of them? The answer, we believe, is to be found in the fact that they have generally failed because it has not been the duty of any particular officer or group of officers to carry out the recommendations adopted. The usual motion to appoint a committee to consider an address or to receive and print a report is usually a polite way of saying send flowers and bury the report in the proceedings.

It is, however, not our purpose to review the addresses or even to enumerate the various timely recommendations that have been made in the past. Not, as previously stated, because they would have no bearing on present conditions, but rather because it is so much easier to arouse interest in what lies before us. However, it might be well for us to pause once and awhile and review the work we have done in the past. By so doing we could analyze and appraise it at its true value. No doubt we would find some unburied mistakes, but even these should serve to guide us in our deliberations in the future. At this point we might well ask ourselves if we are achieving the ideals which the founders, as well as the succeeding workers in the Conference, had before them? Any organization to achieve a place worth while must set before it some goal to strive for if in the end their efforts are to be considered worth while. Without these ideals the Conference would be much like a ship that has lost her rudder, a derelict on the sea of progress, and responsive only to the whims and caprices of those who have failed to have a vision of the future. But as President W. F. Rudd pointed out in his address "the progress of pharmacy and of the Conference have been in the hands of two groups, one of which has been ultraconservative and the other progressive." As he further pointed out, "the answer as to which group had dominated the policies of the Conference was to be found in the fact that at that time the highest requirements of the Conference were but two years of high school for entrance to pharmacy schools." This statement, however, should not be taken as an evidence that these low requirements were unusual and represented, at the time, the highest required in pharmacy for, as is well known, they did not. They did, however, we are sorry to say, represent the attitude of the Conference as well as the attitude of the majority of the schools in the United States toward higher requirements for admission to the study of pharmacy. And what is even more unfortunate they conveyed to the public the impression that such requirements were all that were necessary to study pharmacy. Quite naturally some will say that while the foregoing facts may be true they do not truthfully represent the attitude of the Conference since at that time the Conference had gone on record as favoring the high school requirements. That in fact the Conference had agreed to go such a basis in 1923. While these facts are substantially true we should not forget that not only was the time for adopting this requirement postponed once, but that efforts were subsequently made to delay the time of their final adoption. It is not necessary to repeat the arguments that were advanced in support of the delay, in putting into effect the high school graduation requirement, since they are familiar to all. Fortunately for the Conference, and for pharmacy in general, these arguments for delay were of no avail and the original vote of the Conference was sustained.

When we recall the fact that the final adoption of this requirement will have marked nearly twenty-five years of Conference history we are quite certain no one can claim that we do things hastily. Now that the time for the universal adoption of this requirement draws near we believe all will agree that it marks the one great forward movement of the Conference and an ideal achieved. What effect this step, on the part of the Conference schools, will have on the non-conference schools remains to be seen. We believe, however, that it will be far-reaching and that before long they will be adopting the same requirements. Some may doubt this, nevertheless we are quite sure that time will bear out the statement. One thing is certain, that, as long as the Conference was composed of schools with requirements varying from the eighth grade to high school graduation, there was little hope of ever inducing the outside schools to change their requirements. In the past some of these outside schools have boasted that their requirements were the same and even higher than most schools in the Conference. With this attitude and the facts in their favor there was little that could be said or done to contradict them. With the new requirements effective in 1923 a new order of things will confront such schools and they will have lost one of their strongest arguments

for continuing their low standards. In addition most prospective students, when they find it impossible to enter a Conference school without having graduated from a high school, will soon inquire why some of the non-conference schools do not meet the Conference requirements. It may not always be possible for them to get the true reasons, but they will not rest until they have the facts and having these they will select the school having the highest requirements, since it is an inherent tendency for us all to want the best.

In the past when discussing the raising of requirements, it will be recalled, the Conference members argued that the State Boards of Pharmacy should take the initiative in the matter. The Board members, on the other hand, believed that the schools should be the first to advance the requirements. One of the arguments often advanced for the schools taking the first step was the fact that the medical schools had made all the advances in the requirements for medical education. While this is true it should not be overlooked that practically every state had enacted a prerequisite law for medicine and that in addition they demanded high school graduation as a minimum preliminary education. It is largely on this account that the medical schools could make their own requirements for admission. This of course was not always done without pressure from the medical association, but it was done nevertheless. As an example, on the other hand, of the effect when the Boards of Pharmacy raised the requirements we might cite the case of any one of the states having a prerequisite law. The influence such can wield is hard to realize, but now that such conditions actually exist their influence is being felt, not only in the adjoining states but throughout the country. As an example of this influence we wish to cite the effect of the Ohio prerequisite law. We select this not because it is better than any other law, but because we are more familiar with it. We believe that we can say without question that its influence has not been confined entirely to the surrounding states, but that it has been far-reaching. A part of this general influence has been due largely to the impartial manner with which the Board of Pharmacy has enforced the law. That this is true is evidenced by the repeated efforts made by various schools and even Board members, as well as by individuals, to have the Ohio Board of Pharmacy modify its rulings relative to the recognition of schools and individuals, some even going so far as to employ attorneys and send officers high in the ranks of various pharmaceutical associations to appear and argue for a different interpretation of the law—these often suggesting that the Board should shut its eyes to the real facts in the case and interpret the law in such a way as to admit those unable to qualify within the real interpretation of the law.

Much of this criticism has been unjust, selfish and unreasonable and due largely to the endeavor to have such schools and individuals granted privileges not granted to schools and individuals in the state. As a result of the failure to have the rulings modified there has been a distinct change in the attitude toward the Board and some schools have increased their requirements in order that they might meet the Ohio law.

We have gone into a somewhat lengthy discussion of the Ohio situation simply to show the influence of the prerequisite law and the high school requirement on pharmaceutical standards. Also to show what can be accomplished when the pharmacy boards raise the standards and adhere to them. The latter fact we believe amply justifies the contention that, after all, the boards of pharmacy can wield the greater influence in raising standards and that without a prerequisite law to back up the school requirements little can be done to elevate pharmacy or the educational standards.

If we may be pardoned for a personal reference we wish to call attention to the fact that we once argued this point and urged its adoption. This was urged in a report we presented on "The Closer Relations of Schools and Boards" at a joint session of the Conference, the National Association of Boards of Pharmacy and the Section on Education and Legislation, at the Chicago meeting. At that

time we tried to point out the influence the Boards could exert, not only locally but also in the surrounding states if they would raise their standards. Realizing that this would not always be easy to carry into effect we suggested that if this were not directly possible the same end could be accomplished by requiring high school graduation of all applying for reciprocal registration.

In the discussion which followed this was declared impossible and impractical and that it would have no material influence. Repeated consideration of the question has invariably brought us to the same conclusion, namely, that this plan will serve to raise the standard when a prerequisite law and high school graduation requirement are not in force and apparently are impossible for a time. Such a requirement would not interfere with the laws at present in effect nor would it prevent any one within the state from qualifying under the existing laws. At the present time all candidates for reciprocal registration are prevented from so doing, in all states with a prerequisite law, unless they meet all the requirements of the laws in force relative to such registration. Such a requirement would tend, therefore, to help equalize the conditions imposed for reciprocal registration and at the same time raise the standard. We believe in reciprocal registration, but at the same time feel that if it is to be extended by one state to the registrants in another it should mean something. Further, that it should not be granted without the applicant meeting higher requirements than are now in force in many of the states. We know that we are treading on dangerous ground when we make the statement, but the fact remains that the examinations in the various states are not of the same degree of thoroughness and quality nor are they always based on the same preliminary requirements. It would seem, therefore, that if we are to have reciprocity we should adopt some general standard in order that the requirements might be more uniform. This we believe would be accomplished by adopting high school graduation as a minimum requirement of all those applying for reciprocal registration. Otherwise we are granting the highest obtainable favor pharmaceutically on the minimum requirement with the result that such registration is held lightly and means nothing to the candidate.

PRACTICAL EXPERIENCE REQUIREMENT.

While the present practice of requiring practical experience of all candidates for registration is not exactly a form of apprenticeship it savors of the old-time practice and is, along with our low standards, one of the greatest handicaps to pharmaceutical progress. In the early periods of pharmaceutical history, when schools were few and before the present laboratory methods of teaching were so highly developed the actual practical experience gained in the store was the only means one had for gaining a knowledge of practical pharmacy. In these early periods experience so gained really meant something, since the numerous duties and the preparation of the various products used were carefully supervised by the proprietor. That this form of training was deemed inefficient is evidenced by the early establishment of schools, by the apothecary guilds and associations. It is true that these schools were widely separated and were confined largely to the larger cities and that the early instruction was on the part-time basis and was supplemented, for the most part, by store experience, but the fact remains that they were organized to supply a long-felt want. This early method of instruction has, however, been replaced by a more intensive and full-time instruction. The laboratory instruction has largely replaced that of the store experience until now practical experience means little more, in most instances, than porter work, tending the fountain or selling sundries. While we will admit that such duties are indispensable as a part of the general duties of a present-day store, they are not of the same character nor can they be considered as the equivalent of the old-time duties of the apprentice. We have asked many young men what instruction and supervision they received while working, and the invariable reply has been that they received none in pharmaceutical technique or problems. Neither were they directed in their study and technical reading, nor were they told of the various

organizations devoted to pharmacy. In fact they received little attention other than a few suggestions in salesmanship and the care of the store. In the face of these facts we may well ask ourselves why perpetuate a custom that has long since outlived its usefulness. This is no new problem. Rather is it one we have long recognized, but have been loth to bring up since it is about the only custom that links the present-day pharmacy with the old established customs of the past. It was perfectly reasonable to expect that the framers of the present pharmacy laws should have perpetuated the custom since all the early leaders in pharmacy had been trained in this manner. It seems, however, with the present prevailing custom of training students, that some radical change should be made. We may pass resolutions and make recommendations relative to higher requirements, but one of the greatest handicaps to our present-day training is the practice of requiring the student, after graduation, to spend from one to four years in practical store experience before permitting him to register. That the problem is a vital one is evidenced by the fact that various Board members have raised the question as to what constitutes practical experience and how it should be evaluated. Surely a student trained in one of our modern schools with ample laboratory facilities and, especially, one that has a free dispensary connected with it, has a far better chance to receive a training in technical pharmaceutical work than the average pharmacist would receive in four years of indifferent practical store experience. A young man trained under conditions as just outlined would receive a training not only in the fundamentals, but would also have a better training in prescription practice than the average pharmacist would receive in several years of ordinary store experience. Why we should compel a young man to spend, as a minimum, two years in college and the same length of time in a retail store before permitting him to register is beyond comprehension. Quite naturally such a requirement is not a very pleasing prospect to a young man contemplating the study of pharmacy. One of our former presidents very aptly described the condition when he said: "the way it works is to crush the spirit out of a man, who has any spirit, and leaves in pharmacy a lot of corpses." We are well aware that the foregoing sentiments relative to the necessity for and the value of practical experience are not shared by many. This is quite evident from the discussions of the question appearing from time to time in the pharmaceutical journals. It is evident, however, in these discussions, that even the proponents of the idea realize that the present requirement of from two to four years is not justified by the present conditions governing present-day experience. In one article, by a man who is thoroughly in touch with present-day conditions, the statement is made that there should be at least one year of intensive drug store training. The same authority also makes the statement that the college does not and cannot replace the shop in every relation in which practical experience is essential. We do not wish to enter into a lengthy discussion of the foregoing sentiments, but we do not believe that the present-day conditions bear out the statement. We have already presented some of the reasons why we do not believe that the practical experience of to-day is of the same value as college training. Also we have stated why we do not believe that the practical experience is any longer necessary. We may therefore well ask what there is about such experience to particularly fit one for passing a technical examination. The answer is self-evident. If it were the function of the Boards to pass on the business ability or salesmanship qualifications the question would have an entirely different viewpoint. As we view the problem the duties of the Boards are perfectly clear. Their function is to pass on the technical ability of the candidate in order that they may determine whether he is qualified to preserve and protect the health and lives of the public. There is little doubt but that the laws were enacted with this object in view and as soon as the Boards depart from this idea just so soon will the laws cease to function.

The Conference of course cannot change existing conditions, but it can and should agitate the question till something is done to relieve the situation. Many

who realize the injustice of the requirement frankly say so, but at the same time say they hesitate to try and have the laws amended for fear they will be so changed that they will be useless.

As a solution of this vexing problem we submit the following plan which we believe will meet all the objections to the present system and at the same time be feasible under the present law. By this plan one examination could be given at the time the student completes his college work. If he passes this, grant him an assistant's papers and then, when he has completed his practical experience requirement, issue a certificate of registration without further examination. By this plan the examination standard would remain the same as that now in force for the full registered pharmacist. In many states, at the present time, there is little difference between the examination given to the registered and those for the assistant pharmacist. No hardship therefore would be exacted by the slight difference in the character of the examination. In addition the plan would offer a greater incentive to the students to do better work, if they knew they could qualify by the one examination. As it now is many of those who lack the necessary experience to take other than the assistant's examination often say they can easily pass this and that they will have from one to two years to study before they take the registered examination, consequently they are often careless and indifferent about their work. You may have considered this same plan and have dismissed it as impractical. We believe, however, that it is not only the simplest, but also the easiest method we have for eliminating the present practical experience requirement. We trust, therefore, if the plan meets with your approval, that a suitable resolution embodying this idea be passed and presented to the National Association of Boards of Pharmacy for their consideration and approval.

PREREQUISITE LEGISLATION.

The discussion of the question of the great desirability for prerequisite legislation in all the states has been so frequently brought to the attention of the Conference that there is little more to be said on the question. Some perhaps will question the propriety of discussing the subject here since the possibility of obtaining such a law in their state seems so remote. Many no doubt feel that the question is one which lies largely in the wishes of the different state organizations and that the Conference can therefore exert no great influence. While the foregoing may seem a real reason to some there is no doubt in my mind that the question is one that is of vital concern to the Conference. The problem is of course one for the individual state to solve, but without at least the moral support of the Conference we doubt if such things could be accomplished. Whether we wish to assume the responsibility or not, the pharmaceutical world, as well as the leaders in educational circles, look to the Conference as the leader and as reflecting the progressive opinion on things pertaining to the standards and educational advances in pharmacy. For these reasons we wish to urge upon the members from states without prerequisite laws, the necessity of bringing the matter to the attention of the leaders of their state associations. Without the hearty coöperation of the state associations little can be accomplished. You may meet with little support at first; in fact you may fail miserably, but with a just cause and the experience of other states in your favor, there can ultimately be but one result and that will be success. Success in the cause, however, will only come with persistent efforts. In addition we would urge prompt action, for in so doing you will be able to forestall any efforts that may be made to establish a course in pharmacy in the trade or vocational high schools. The latter schools are developing rapidly and with a great measure of support and, in order that they may appeal more strongly to the public, they are constantly increasing the field of their instruction. Already we have one school of this kind and from what we have learned the plan has proved quite successful. While this no doubt is true, the fact that such a school is not only functioning but has proved more or less of a success is a serious blow to pharmacy, since it conveys to the public and others unfamiliar with conditions, the

impression that pharmaceutical instruction is little more than of high school quality. Incidentally one of the greatest forces to have allied to your support is the State Board of Pharmacy. Without its coöperation little can be accomplished, since the Board is generally looked upon by legislators as representing the sentiment of the pharmacists of the state. One of the unfortunate things that influences the attitude of the legislators on a prerequisite law is the charge that it is class legislation and an effort to create a pharmaceutical cast or foster a monopoly. This attitude is fostered usually by those who are opposed to all progressive measures or, sometimes, by the fact that a friend would be prevented from registering by the passage of such a bill. These narrow views are of course most unfortunate and often are the real cause of failure. It behooves us, therefore, to early overcome such prejudices. In doing this we can learn much from those who have passed through such experiences. The Conference could and should stand ready at all times to aid in such campaigns. If we mistake not, one of our former presidents made a recommendation looking to this end and, as we recall, the Conference adopted the recommendation. We do not know, however, whether such a committee was ever appointed or whether it was ever called upon to function. There is little doubt, however, but that the services of such a committee could have been used in numerous instances. The truth of this statement can easily be verified by reading the reports of "legislative committees" to their various state associations where prerequisite laws were up for passage. When reading these it seems strange that men and parties and creeds should seek by all the arts of crafty politicians to impede progress and check the growth of ideas and ideals. But let us not be disheartened. As far back as history goes, we will find the shadows of intolerance, prejudice, selfishness, and conservatism falling across the path of progress to keep men in darkness and ignorance. Let us not, however, be discouraged by such things, for if history tells us the foregoing it also tells us that the spirit of openmindedness and perseverance and progress has brought us many things. Among these we have the many developments in science, engineering and medicine with all their beneficent applications to our needs. To these we may add many other advances and the same spirit will eventually bring to us the ideals for which we are working in pharmacy.

COMMITTEE REPRESENTATION.

Another feature which we feel should receive some attention from the Conference is that of providing some means whereby the various officers, as well as others who are interested, may have a list of the men in the various faculties who are available for committee or other work. While it is reasonable to suppose that the list of delegates published in the Proceedings should provide this we do not believe that it will always serve this purpose. In some instances persons not members of the faculty, of some schools, are appointed as delegates and in some of the early volumes of the Proceedings names of delegates are given when they were not in attendance. While for reasons of efficiency it may often be necessary to work the willing members overtime, the fact remains that if we want to develop a spirit of universal coöperation and interest among the members there should be a greater participation in the committee work. This is not intended as a criticism of the members selected for committees either for the present or the past, but is intended as an earnest effort to devise some means of awakening a greater interest in the work of the Conference. We believe that if there were a greater participation the members would feel a greater responsibility in developing a more varied program. We know from experience that most of us are generally content to let the Chairman do the work. This is most unfortunate and should be remedied, but how, is a question difficult to answer. It does seem, however, that if we could get a greater distribution of members on the committees we might overcome the idea of the chairman doing it all. We suppose that most of the presidents have had a great desire to get as great a number as possible interested in the committee work, for upon the committees rests largely the success of the meetings. Yet

this is not always possible if we do not have some means of knowing the men available for such work. We know from our own experience that we found it difficult to make a very general distribution of the appointments because we had no very definite list of names from which to make our selection. Based upon this experience we have felt that the question was of sufficient interest to warrant some action by the Conference.

ABOLISHING OF STATE BOARDS.

In recent years there has been a growing tendency in state governmental affairs to adopt the federal plan of government and concentrate under department heads the duties of various appointive boards and commissions. The theory or rather the motive back of the movement is generally stated to be in the interest of economy and efficiency. These of course are two elastic catch words that sound well, but often in the end mean little. They nevertheless often serve the purpose of bringing about some rather radical changes in some of the well-ordered and generally efficient departments of the state governmental systems. Unfortunately, we find that among the first to feel the effects of this consolidation are the various examining and licensing boards. Why these should be selected it is difficult to understand. Possibly for the reason that the members are generally appointed for a definite term of office. For this reason when the political plums are distributed, with the changing administration, the appointing officer finds it difficult to remove the men without arousing quite a storm of protest. The wisdom of discussing this problem in the Conference may be questioned, but it seems that as teachers of pharmacy we are vitally interested in keeping the examination of our students out of politics. We are further interested in seeing that the licensing of not only pharmacy students, but those of medicine, dentistry and any other group for which educational standards are prescribed is not prostituted or commercialized by a spirit of gain or the payment of political debts. The recent scandal connected with the Department of Registration in one of our neighboring states is certainly sufficient evidence of the weakness of the plan. It also should serve to show to what ends unscrupulous and weak officials are able to go. It no doubt may be argued that the trouble was not due to the system, but rather to the weakness and dishonesty of those who were empowered to enforce the law. Theoretically this may be true, but it is quite evident that there is a much greater likelihood of such a thing happening when the enforcement of the law is in the hands of one or two men than when the power is vested in a board of five or six. The unpleasant experience of our neighbor will no doubt serve to deter other states from soon attempting such a move. However, the voice of the reformer and economist is abroad in the land and we know not when it may induce some other state to try the same or a modified plan. The arguments against the system are many and they have been quite ably presented by the efficient Secretary of the N. A. B. P., in numerous articles printed in recent drug journals and they are therefore familiar to you; hence, it is unnecessary for me to discuss them here. Suffice to say the question is one which is worthy of our constant and careful consideration. We should not only be constantly, but aggressively alert to counteract any movement which will tend to remove pharmacy from the control of pharmacists and thus block our efforts to raise the standards of pharmacy educationally, commercially and ethically.

RESEARCH.

Among the many important topics which are open for our consideration pharmaceutical research should have a prominent place. It is true that we have a committee on research, but we cannot rest on this fact alone nor can we expect the committee to do all the work. As individuals we should aim to make some contribution, however humble, to the sum total of scientific knowledge. Without this effort we are likely to deteriorate and become mechanical purveyors of knowledge rather than leaders and teachers in the fullest sense of the term. It seems most essential that we have some problems under investigation in order

that our students may realize that pharmacy is really more than a trade. It is of course true that all are not investigators and that some serve best as teachers and in the latter instance make a real contribution to pharmacy. In other instances we may be burdened with detail and clerical work to such an extent that it is impossible for us to do any very systematic work. Some one must of course do the routine work. In every instance, however, where some member of the faculty either demonstrates his ability to carry on some problem or even gives promise of ability along such lines he should be encouraged and his teaching load reduced so as to give him an opportunity to demonstrate his ability. As President Packard pointed out last year, in his presidential address, before the A. Ph. A., "Research is fundamental in the science of pharmacy since no science progresses unless some of its followers add their portion of experience to the sum of human knowledge." Pharmacy cannot afford to stand idly by and permit investigators from other fields to step in and solve her problems. We frequently hear some of our members lamenting the fact that our pharmacy schools are rarely the recipients of endowments or of funds for furthering the development of scientific equipment. We cannot expect to receive any such gifts as long as we fail to make an effort to merit them by making some contribution in the fields of applied science that will help allay our ills and increase human efficiency. Neither can we hope to do things or attain distinction by legislating or passing resolutions. Such things come only as a reward for hard work and the distinction of actually having done something.

SYLLABUS.

In practically every meeting of the Conference since its adoption, some time has been devoted to committee reports and discussions relative to the function, scope and other features of the Syllabus. It is not our intention to review these discussions but we do feel that something should be said relative to the position of the Syllabus in the Conference. There is little question but that it has served a useful purpose as a guide for the scope of the various subjects taught in pharmacy schools. Its greatest value, however, has been as a basis for coördinating the work of the colleges and the Boards. While it has served these various purposes it is most unfortunate that, as one of the members of the Syllabus Committee stated, "it was to outline nothing but a minimum course in pharmacy." This fact has been used by many non-Conference schools as an argument that they are more than meeting the Conference requirements when they give a few more hours work than the Syllabus minimum. To the prospective student and the public in general this gives the impression that such schools are giving more work than the Conference schools. While this may be true, in some instances, it does not in any way apply to the majority of Conference schools. The inference, however, remains just the same. In other words the majority of schools must suffer by comparison, at least, on account of this low minimum requirement stated in the Syllabus and what is worse by our own by-laws. Such a condition is unfortunate enough under the conditions previously mentioned, but when the standards of the Syllabus are made a standard for a law requirement then it is certainly time some change was made. Why try to delude ourselves longer by imagining we are doing college work on a 1200-hour basis when a high school course in pharmacy is offering a greater number of hours. It of course may be argued that the Syllabus is intended to outline the minimum time to be devoted to the technical subjects considered as fundamental in pharmaceutical training; the inference being that the remaining time is to be filled in with such other subjects as seem essential to present-day needs of the pharmacist. If this is the intention, then it should be definitely stated so there could be no misunderstandings or wrong interpretation of the requirements. In this way the wrong impression could be corrected and schools not meeting the Conference requirement would be prevented from interpreting the statement in such a way as to discredit the Conference schools. Personally, we do not believe this latter view is the one intended to be conveyed either by the Syllabus or the

Conference by-laws. Something should be done to raise the minimum requirement to at least 1500 hours.

NON-CONFERENCE SCHOOLS.

At the present time there are some 80 schools in the United States teaching pharmacy and of this number 48 are members of the Conference. It would seem therefore highly desirable to increase our membership and to this end bring to the attention of some, if not all of the schools, the objects and ideals of the Conference. The idea of increasing the membership is not a new one for in numerous presidential addresses, in the past, we find reference to this question. As one of them stated, "I cannot believe that we have within our fold all of the schools which are earnest and honest in their purpose and efficient in their work." Each year finds a few schools applying for membership, but at this rate it will be several years before we can hope to have any large number of the present non-conference schools included in our membership. We believe, therefore, that it is highly desirable that some effort be made to at least bring to their attention the desirability of holding membership in the Conference. Certainly by so doing we can more nearly attain uniform requirements for the schools than we have at the present time. In addition there is little doubt that we would find the schools offering a more uniform standard of instruction. For the same reasons we could establish a more uniform curriculum and bring about many other changes which would materially advance pharmaceutical education.

FEDERATION OF PHARMACEUTICAL ASSOCIATIONS.

We believe all will agree that one of the greatest needs in pharmacy of to-day is some plan whereby the various pharmaceutical associations might be federated into an organization working for the interests of pharmacy at all times. It is evident that with the great number of associations we have devoted to various phases of pharmaceutical interests there is not only a greatly divided effort but that our enthusiasm is expended largely upon the organization in which we are most interested. That this is true is quite natural, but at the same time we cannot but feel that if a part of this enthusiasm were expended upon some centralized effort the returns and benefits to pharmacy would be very much greater. We would not have you feel that we undervalue the efforts these various organizations are expending either in behalf of their special organizations or for what they feel is for the best interest of pharmacy. Such is not the case. Nor do we have any desire to limit the number of organizations, for we feel that they all have their own problems to solve and can no doubt solve these more easily as an organization than as individuals. We, however, do very strongly feel that out of this multiplicity of organizations and diversified efforts must eventually come some concerted effort, if pharmacy is to achieve any distinction in the future or even maintain her present position. It is rarely possible for any individual or organization to accomplish all that they should. For the same reason no group of organizations working singly can hope to accomplish as much as the same groups could working harmoniously with the other organizations working for one common purpose. Yet in the face of the facts pharmacy seems to be the one group which wishes to do things through various single organizations. The sooner we realize that this cannot be done and that thus far such divided efforts have largely failed then may we hope for a greater future in pharmacy. Since all these organizations spring from a common source and have many problems and ideals in common it would seem that it should not be difficult to at least federate our organizations under some common workable plan. Do not infer from the foregoing discussion that we wish to do away with any of the present organizations. We feel that there is a distinct place for every one from the local city or county organization up to the state and various national organizations. At this point it may be stated that several plans for the reorganization of the A. Ph. A. will be presented at some one of the concurrent meetings. Undoubtedly objections will be found with some

one or all of these plans, but at the same time it does seem possible that from these some satisfactory plan of federation, which will be of mutual benefit to all, can be developed. When this time does come it will be unnecessary to hold symposiums or consultations on "what is the matter with pharmacy," but rather to devise means to restrain her in her new-found strength.

IDEALS IN PHARMACY.

To me one of the most important functions we have to perform as teachers is that of instilling into our students enthusiasm for their work and for the ideals of pharmacy. Without this enthusiasm and respect for the ideals we cannot expect to achieve any great distinction or position in the future. We should not lose sight of the fact that the long and honorable history of pharmacy has been due to men with ideals and always with a vision of the future. The founding of our first colleges, the organization of the A. Ph. A. and the various state organizations, the organization of the Conference, the passage of our pharmacy laws and the creating of the State Boards, the fact that we have been able to pass prerequisite laws and increase educational requirements have all been due to the enthusiasm and ideals of men who had a vision of the future of pharmacy. Are we preparing the students of to-day to do as much? It seems to me that there never was a time in the history of pharmacy when it was so necessary for us to emphasize the long and honorable history of pharmacy and instill into our students a vision of the future. I would not only plead for educational and professional, but for business and ethical ideals as well, for without these our progress is doubtful. We should therefore devote some time to the consideration of these factors emphasizing the necessity for their observation. The position any business or profession occupies in the mind of the public is governed by the educational, professional, business and ethical ideals of the individuals engaged in the business or profession. This position is to be especially guarded in the handling and dispensing of narcotics and alcoholic prescriptions and our business ethics. We should point out to our students the fact that while a part of the pharmacist's duties are commercial that there are professional duties as well and that in performing these there are certain ethical standards and ideals to be observed. As a background or foundation upon which to build these ideals we must have an educational training sufficient to enable the student to appreciate the importance of the work he has chosen and comprehend the relationship he bears to society. There is every reason to expect that the student will respond to such a program of ideals and interests and will grow away from many of the petty prejudices and provincialisms which surround pharmacy to-day. In so doing they will develop a keener appreciation of the importance and responsibility of the pharmacist to the community as well as to his fellow workers. Along with this let us hope that they will develop a spirit of openmindedness, a factor which is so essential to progress. Let us strive to develop our curricula and teaching methods and personal relations to our students to such an extent as to develop not only a high degree of technical skill, but also the ideals, culture and efficiency of his calling. While such a training is so essential it will not in itself be sufficient unless they realize, as individuals, they owe to the state and society a reasonable return in culture, efficiency and good citizenship.

PRESIDENTIAL ADDRESS.

NATIONAL ASSOCIATION OF BOARDS OF PHARMACY.*

BY LUCIUS L. WALTON.

We are fast approaching our majority and, looking back upon our childhood and youth, we are impressed by the progress made toward uniting all the Boards of Pharmacy in an association for mutual coöperation in establishing reciprocity in Pharmacists' licenses, and of the growing influence of this body in the determination of protective measures and standards.

Our aim is universal reciprocity in registration based upon the successful passing of one qualifying examination, given by a Board of Pharmacy. For its full accomplishment we must have definite and uniform minimum standards and make them effective in every state.

LUCIUS L. WALTON.

An organization composed of State Boards of Pharmacy, devoted to the work of determining proper professional standards for the practice of Pharmacy and putting them in force, needs no better testimony to the need for its existence than the fact that ninety percent of the eligibles, or 43 State Boards and the Board of Pharmacy of the District of Columbia, are now included in its membership.

This is almost universal appreciation of the objects of our Association by the Boards. It is deeply regrettable, and hard to understand, that there is a single Board of Pharmacy in the United States withholding its full support and coöperation from an organization, the objects of which bear such vital relation to the work and duties of every Board.

However, we are encouraged to believe that further progress on our part will soon win for us the coöperation of all. This we covet for it is absolutely essential to the full realization of our aims. So again we extend a most cordial invitation to the Boards of Pharmacy of the states of New York, New Jersey, California, Rhode Island and Wyoming to "Come over into Macedonia and help us" solve our problems, and establish proper standards in all states for Pharmacist registration and licensure. We need you, and we believe that you need us. Will you come?

Reciprocity as regards Pharmacist licensure must be the common obligation of every Board of Pharmacy, if we are to provide authority for qualified Pharmacists to practice anywhere in this country, without submitting to reëxaminations. But before such obligation shall rest upon each Board, we must have minimum standards for Pharmacist registration in force in every state. This leads me to consider with you now the progress that we have made in the adoption of such standards, and our immediate duty bearing upon further progress in this very important matter.

UNIFORM REQUIREMENTS.

The uniformity which we need includes the adoption and enforcement of minimum standards for pre-professional education, practical experience, professional education, and the qualifying examinations. It is the duty of this Association to determine the minimum standard for the examinations, which shall be recognized as meeting the examination requirement under the reciprocal relation, and that for practical experience.

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* Cleveland, Ohio, August 14, 1922.

The other standards demand of us, for their determination and legal establishment, coöperation with pharmaceutical associations, both state and national, the American Conference of Pharmaceutical Faculties, and state legislative bodies.

At our last Annual Meeting we adopted a standard for practical experience, both as to the period and character of the service which should be required. We have performed our duty as an Association in respect to this requirement, and it marks our progress toward uniformity. However, it remains for the individual Boards to make this standard effective. Only as far as group action is concerned may we regard our duty in this relation completed for the present.

A study of our Pharmacy laws reveals that thirty-two of the Boards have power to put this standard in force, without revising their laws. I desire to remind all the Boards of this obligation and urge them to take the necessary steps for its fulfilment.

It has been suggested that we have not made the progress toward uniformity in Board of Pharmacy qualifying examinations, consistent with our object or the power the Boards have over them. A study of the Chart of Requirements existing in the various states at present, recently prepared by our Secretary and sent to the members, shows much difference in the examinations. This is one reason why applicants for reciprocal registration fail of acceptance, and are often "sorely" disappointed.

For the difference in other requirements, due to difference in the laws, which this Chart reveals, we are not altogether responsible. But for the difference in subjects constituting the examinations, and in the number, scope, character, rate value of the questions, and passing grades, we are wholly responsible.

Every Board of Pharmacy has the power to state in what subjects its candidates shall be examined; how many questions shall comprise the examination in each branch; and fix the grades at which competency may be established. Each Board examiner may control the scope of his examinations, and make them sufficiently comprehensive for determining proper qualifications.

It seemed, therefore, that the paramount duty of your President this year was to center activities in determining a minimum standard for uniform examinations. With this object in view, the nine Vice-Presidents, the Executive Committee, and the Treasurer were called together for a two days' conference with the Secretary and myself, at the home office in Chicago, last January. When the conference convened all of these officers were present, and each Board of Pharmacy was thus represented by its District Vice-President.

We gave most thoughtful study and consideration during those two days to the problem before us. Under the guidance of our efficient and capable Secretary, and chairman of the Advisory Examination Committee, this corps of experienced Board of Pharmacy examiners discussed the constructive suggestions made in the past by himself and his committee, and of the members whose valuable thoughts on the subject of Board examinations are recorded in our Proceedings.

The chairman of the Executive Committee, who is also one of our representatives on the National Syllabus Committee, presented for our consideration the helpful suggestions relating to Board examinations and questions, which are to be published in the forthcoming revision of the Syllabus. The subjects, number of questions, and grades now employed by different Boards were also thoroughly considered.

In this manner we were led to unanimous agreement on the *subjects* which should be adopted as standard for the Pharmacist's examination. These determined, the number of questions and rate values was also agreed upon. We then formulated type questions to represent the scope and character of an examination for each subject, thus illustrating by example a complete examination as it might appear under the standard that we had approved.

The work of the conference was highly pleasing and satisfactory. It resulted in giving the Association a concise and complete statement of a standard for the

Pharmacist's examination, so necessary to our progress toward entire uniformity of requirements. If it meets with your approval, as I trust it will, the Association need no longer be groping for a standard through which to meet its responsibility for uniform examinations, and we shall have a working basis of the utmost value to the Boards in making it effective.

It is my earnest desire that the establishment of a standard for our examinations, which is fundamental to uniformity in this branch of our work, shall this year mark our progress toward the goal of uniformity in all requirements, and, therefore, I make the following recommendation:

That the detailed report of the Conference of Vice-Presidents and other officers, held in Chicago last January, as made by the Secretary and sent to the members, be taken up at this meeting for consideration and adoption.

QUESTION SHEETS.

In establishing uniform examinations, the preparation of the question sheets sometimes becomes quite a problem for the examiner. It should not be forgotten that the Association exists for the service of its members, and whatever service it is prepared to render should be commanded when needed.

Our Advisory Examination Committee, of which our Secretary is chairman, is proficient in the preparation of Board of Pharmacy examination questions, and will aid us in this part of our work. The Secretary advises that he is prepared to submit sets of questions conforming to the examinations as outlined in our proposed standard, and will gladly do so when requested. I think he should be called upon often, by both new and old examiners, in order that the scope contemplated for a standard examination may be fully comprehended by all.

DISTRICT MEETINGS.

No calls were issued by your President for holding District Meetings. This was due to inability early in the year to arrange a definite program for them, without which I did not regard the expense warranted. After having the conference with the Vice-Presidents, I deemed it advisable to let the District Meetings go over to another year. The incoming President will find a plan of work in the report of the conference, which if adopted by the Association will make District Meetings very necessary and give the Vice-Presidents plenty of work.

COLLEGES OF PHARMACY.

It is pleasing to note that most colleges of pharmacy are crowded with students, and the prospects for still greater numbers seeking instruction in pharmacy schools were never brighter. I commend the care now being exercised by the Faculties in electing students for graduation. I commend them, also, for the attention they are paying to the selection of a properly qualified student body.

The need for placing emphasis on the moral character of their applicants for college entrance is evidenced in my work almost daily. We must strive to keep Pharmacy in the custody of men of good character. The colleges have a duty to perform in this respect which is sometimes too lightly regarded. I urge that more attention be paid to the morals of the persons admitted to the courses of instruction given by these institutions.

DETERMINATION OF PRELIMINARY EDUCATIONAL QUALIFICATIONS.

The methods of adjudicating credentials offered as qualifying under professional requirements, and determining the equivalent thereto, vary greatly in the different states. In some this is done by the State Department of Education and is altogether the most satisfactory. It should be the authority which our Association approves for determining preliminary qualifications for college entrance and admittance to State Board examinations.

Unless there is determination of the "equivalent" by a duly constituted state authority submitting the candidate to examinations, based upon the subjects taught in a standard high school course, we are apt to have difficulty on this score

and find otherwise qualified persons refused reciprocity, when they desire to enter practice in a different state from that in which they were licensed.

It would appear to be in order for the Association to give some consideration to this question, and take action showing its desire to have the duty of determining preliminary qualifications rest with State Education Departments. I know of no better way to overcome the objections which are bound to be raised against methods employed for determining preprofessional qualifications which will not stand the test of investigation, and which are not consistent with approved educational methods, and lack proper authority.

THE GRADUATION PREREQUISITE.

With twenty-one states requiring their Pharmacists to be graduates of a reputable college of Pharmacy, we note with pleasure the growing tendency toward the establishment of this prerequisite, which our Association has ever regarded as essential to the proper training of a Pharmacist, and encouraged every effort to accomplish.

This year our Secretary joined with the Faculties in sending letters and arguments for use by Boards of Pharmacy, in support of proposed legislation providing college of Pharmacy graduation in the states which do not require it. We are assured that strong efforts will be made this winter by a number of Boards of Pharmacy to have such laws enacted in their respective states.

If I read the signs of the times correctly, the fruitage of all work done in the past in this direction is bound to mature rapidly in the next few years. Economic conditions are having a most favorable influence in bringing about proper preprofessional training for Pharmacists, and the further step of systematic college of pharmacy instruction in pharmaceutical subjects and processes will follow as a natural sequence.

No person with a preliminary education that qualifies for Pharmacy licensure will take the chance of handicapping his success, by foregoing the only means of becoming a qualified Pharmacist and placing himself on an equality with the best practitioners, whether the state compels such training or not.

We are bound to have more and more college of Pharmacy graduates practicing Pharmacy. The more we have the sooner will success be obtained in establishing such graduation as prerequisite to Pharmacist licensure in every state. The realization of the need of college of Pharmacy instruction, by persons taking up Pharmacy, is evidenced by the crowded condition of all Pharmacy schools.

It is but another step to realization on the part of the state that safe and qualified coöperation in medical service by the Pharmacist can no longer be assured its citizenry, if it fails to enforce educational qualifications for a Pharmacist's license, consistent with intelligent comprehension of the sciences and technical operations involved in carrying on the drug business.

It is our duty to keep on demanding the passage of prerequisite laws and assisting in getting them enacted wherever we can. We want the reciprocal privilege extended to as many Pharmacists as possible, but it cannot be to Pharmacists registered in recent years, or who register in the future and are not graduates of Pharmacy, by the Boards in states which require this graduation.

We need to assist in the framing of prerequisite clauses of Pharmacy laws, in order that complications be avoided which disturb the reciprocal relations. There is a great need for a model prerequisite clause which will not violate the minimum college entrance requirements which have been adopted by the Faculties and the Boards.

We have had one state enact legislation relating to this matter which was entirely out of harmony with that of the others. In this case the law was certainly unnecessary to the establishment of a proper preprofessional requirement, and has caused the Board of Pharmacy to deny recognition to colleges of Pharmacy of admitted high standing.

Moreover, it has worked hardship upon several graduates of these colleges by depriving them of an opportunity to either prove their competency before the Board of Pharmacy of the state, or receive the benefit of its reciprocal provision for the registration of Pharmacists of other states.

The reason these graduates were denied registration was because they came from colleges which did not demand that every student entering the college at the time that they did should be graduates of high school, notwithstanding they were high school graduates themselves. For that matter they might hold liberal arts degrees and, under the prerequisite law as enacted and construed in that state, they would still be excluded from the Pharmacy licensing examinations or from receiving registration by reciprocity.

I bring this to your attention because it reveals conditions which seem to me unreasonable, and shows how necessary it is for Boards of Pharmacy and others interested in such legislation to guard against this mistake in the future.

RECOGNITION OF COLLEGES BY BOARDS OF PHARMACY.

Some of our prerequisite laws provide that the applicant for examination and registration as Pharmacist shall be a "Graduate of a reputable and regular chartered college of Pharmacy" so recognized by the Board of Pharmacy. In others, the recognition, or registration, is determined by the State Education Department, or by the Board of Pharmacy on more explicit provisions laid down in the Pharmacy law as to the character of the college.

As the matter stands now in cases where the Board of Pharmacy is limited to its own idea of what constitutes "reputability," we may have as many different opinions as we have Boards charged with the duty of granting recognition. If our Association would adopt a set of rules by which "reputability" of a college of Pharmacy could be determined, and provide inspection and registration as "reputable" by the Association, of all schools and colleges which conformed thereto, it would give the Boards a standard upon which they could depend, and their action in recognizing schools could be founded on definite requirements and proper investigation.

Moreover, it would lead to uniformity in the recognition of colleges, which is very desirable, in view of the growing importance the alma mater of a graduate Pharmacist has in respect to his receiving the benefit of reciprocal privileges.

CONSOLIDATION OF PROFESSIONAL EXAMINING BOARDS.

We have had a conspicuous example in the past year of one phase of the weakness of this plan for centralization of authority over the professions, which should awaken the pharmacists of the country to a realization of their duty to protest the further establishment of this system, and take a stand for the continued administration *by Pharmacists* of all laws pertaining to the examination and licensing of persons to practice Pharmacy.

The abolishment of the Pharmacy Boards of some five or six states has already been accomplished by the adoption of the consolidation plan, and the movement threatens the existence of others. It will no doubt be fostered in a number of legislatures this winter, through the introduction of bills providing for such consolidation by misguided legislators who profess to see in the plan great economy for the government. There is political capital a-plenty for the legislator who fathers or supports a proposed effort to economize in the expense of government, and for that reason it becomes more difficult to defeat a measure offered ostensibly for this purpose.

The whole truth will have to be told, and told plainly, about the economy that will not come through including Pharmacy Boards in such consolidations. We shall need to let it be known that in most of the states the administration of the Pharmacy laws is at no cost to the tax-payers, but that it will become a charge upon them under the consolidated plan.

We shall have to explain how we could only get such laws originally by saddling the expense of administration upon the pharmacists. A familiar Pharmacy law

provision reads, "And no part of the salary of the said Board or the expenses thereof shall be paid out of the State treasury." We shall have to insist that the present system of a separate Board, which has functioned so satisfactorily and efficiently for years, cannot be sacrificed consistently on the plea of economy. Such plea fails admirably when applied to the consolidation of Pharmacy Boards with others.

But what are the objections, otherwise, to this system of professional registration? If we ask Illinois, the first state to pass an act consolidating examining Boards, the answer of an examiner, appointed and acting in behalf of the profession of Pharmacy under the consolidation plan, is as follows:

"Under the consolidation plan, the professions are powerless to preserve their integrity, if the powers-that-be will otherwise. We proved this in Illinois when the Pharmacy Examiners, attempting to maintain the honesty of our examinations, found ourselves powerless to do so, and withdrew for the purpose of fighting from the outside what we could not prevent from within."

If we ask Utah, another state in which the practice of Pharmacy is retrograding under the consolidation system, the answer of the Chairman of a special Board of Pharmacy committee, of the Utah State Pharmaceutical Association, is:

"I have no animosity toward an effort at economy on the part of the state, but as Pharmacists we have been outraged. Formerly we had a Board that paid its own way and provided protection for the Pharmacists as well as the public. But now there are men in every town of the state who are filling prescriptions without authority. There is no inspection, and for that reason no one has been before the Board for Examination."

If we ask Nebraska, also a state in which the consolidation plan is in force, the answer of the Secretary, Department of Public Welfare, is favorable and there are no objections. He says:

"In as far as the licensing of Pharmacists in Nebraska is concerned, their Board (Pharmacy) has as full and clear a hand as they desire." "After three years of carefully working in the Administrative Code System, I must say that the System is correct, and if it does not work out very well, it is not the fault of the System, but the fault of the people who administer it."

But I find the chief objections to the consolidation plan as provided under the laws of some states, and as proposed in propaganda in behalf of this system in my own state, to be as follows:

First: It robs each profession of its right to be judged solely by its own members, through placing this authority with a Board made up of representatives of different professions.

Second: It undermines the obligation of the professions to develop and maintain progress in requirements for professional practice, by transferring the responsibility for enforcing the laws and regulations to more or less disinterested persons.

Third: It provides a professional licensing system which is controlled in part by representatives of professions having conflicting interests, thus opening the way for formation, within the Board, of alliances that may dominate in administration of the laws, and harass, injure, or crush out a profession that it finds objectionable.

Fourth: The sole politically appointed head or administrator of the Board, if so disposed, may manipulate the registration machinery of the system in such manner as to make professional license a reward for the friends of a politician, or a source of revenue for himself; thus defeating completely the protection and competent service that laws regulating professional vocations are designed to give the public.

Fifth: It is thus a system potential in trouble and dissatisfaction for every profession which may be included in it.

DEATH OF MEMBER.

We mourn the loss of one of our most earnest and devoted members who was with us at our New Orleans meeting. Mr. Ira B. Clark, Secretary of the Board of Pharmacy of the State of Tennessee, was called into rest in May of this year.

He gave the best years of his life in sincerest devotion to the cause of Pharmacy, and was untiring in efforts to advance its professional standards.

For nearly a score of years he was the Secretary of the Tennessee Board, and was a staunch supporter of this Association and all others devoted to the interests of Pharmacists. It was said of him by one who knew him well, a colleague on his Board, that "He was a clear headed logical thinker, safe counselor, high minded gentleman and faithful friend."

In conclusion I desire to record my deep appreciation of the compliment and honor which you conferred upon me, by electing me to the office of President of this organization. I sincerely regret that I have done so little toward promoting its progress and welfare. Several things which I should like to have undertaken in the interest of our work had to be left undone, because of the insistent demands upon my time of my duties as member and Secretary of the Board which I represent, and as Executive Secretary for enforcing the State Pure Drug Law.

These duties and an illness during the winter forbade my visiting but one of the Boards, or honoring any of the several invitations which I received to represent you at State Pharmaceutical and other Associations. I am hopeful, however, that the Association has not suffered seriously in any respect because of my short-comings. I am sure that you will find some progress made as the result of the very efficient work of the other officers, to whom I am deeply indebted for their cordial support and assistance.

"And so, my friends, let's face the year so nigh,
With faith renewed, and aspirations high,
And journey on."

SYNOPSIS OF PROCEEDINGS, NINETEENTH ANNUAL CONVENTION OF THE NATIONAL ASSOCIATION BOARDS OF PHARMACY.

CLEVELAND, OHIO, AUGUST 14–15, 1922.

BY H. C. CHRISTENSEN, SECRETARY.

The nineteenth annual convention of the National Association Boards of Pharmacy was held in Cleveland, Ohio, August 14–15, 1922, with the largest attendance in the history of the Association. Thirty states were represented with a total of fifty-eight delegates and associate delegates present.

Following is the action taken on some of the more important questions coming before this meeting:

The report and recommendations of the joint conference of the Executive Committee and Vice-Presidents, held in Chicago in February, were adopted unanimously. This includes unanimous acceptance of the following recommendation:

> *Resolved*, That the subjects upon which applicants for registration as pharmacists appearing before the member Boards of the respective states shall be examined, shall consist of—
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> PHARMACY, 20 questions, usually not more than two divisions, each question rating of equal value.
>
> MATERIA MEDICA, 20 questions, usually not more than two divisions, each rating of equal value.
>
> CHEMISTRY, 10 questions, usually not more than two divisions, each rating of equal value.
>
> PHARMACEUTICAL AND CHEMICAL PROBLEMS, 10 questions, usually not more than two divisions, each rating of equal value.
>
> PRACTICAL PHARMACY, not less than four products, prescriptions or prescriptions and preparations, each rating of equal value, or not less than three products and oral work.
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> Each subject being rated at a total of 100%.
>
> Questions referring to Latin titles and synonyms, or requiring only a word or two to answer, may be increased to five divisions.

Separate examinations to be given for Assistants, consisting of the same number of questions on the same subjects as for full registered, with the same general distribution and same rating value, questions to be more elementary and designed to establish the ability of the applicant to perform the duties to be required of an assistant.

It was the unanimous decision of the Association that each state adopt for the determination of the equivalent of High School, some standard which will be recognized from one state to another, this to consist of the same number of units as required by the Board of Education of the individual state, or some other authorized state body, and to be substantiated by certification granted on the basis of official examination.

President Walton, in commenting on the plan of consolidation of Professional Examining Boards, sums up the outstanding objections to any such plan as follows:

First: It robs each profession of its right to be judged solely by its own members, through placing this authority with a Board made up of representatives of different professions, or of individuals not interested in any of the professions.

Second: It undermines the obligation of the professions to develop and maintain progress in requirements for professional practice, by transferring the responsibility for enforcing the laws and regulations to more or less disinterested persons.

Third: It provides a professional licensing system which is controlled in part by disinterested individuals, or by those having conflicting interests, thus opening the way for formation, within the Board, of alliances that may dominate in administration of the laws, and harass, injure, or crush out a profession which it finds objectionable.

Fourth: The sole politically appointed head or administrator of the Board, if so disposed, may manipulate the registration machinery of the system in such manner as to make professional license a reward for the friends of a politician, or a source of revenue for himself; thus defeating completely the protection and competent service that laws regulating professional vocations are designed to give the public.

Fifth: It is thus a system potential in trouble and dissatisfaction for every profession which may be included in it.

The Committee to which this report was referred, in commenting on the subject of consolidation, said, in part:

"We would recommend that this Association go on record as seriously opposing any such practice, both from the professional, the logical, the economic and politico-danger viewpoints, our comment is that any 'system' which can be manipulated as this 'system' has been, is not right or correct, and the fault is quite as much with the 'system' as it is with human frailty."

The Association went on record unanimously as being strongly opposed to the consolidation of professional Examining Boards under one Bureau or Department.

The following resolution regarding liberality in considering applications for reciprocal registration, was adopted:

Resolved, It shall be the general policy of the National Association Boards of Pharmacy to accept applicants for Reciprocity provided there are no specific provisions of law to prevent, and that all rules and regulations adopted by the Association shall be interpreted liberally and in favor of the applicant. And be it further

Resolved, That graduates of recognized and regularly chartered colleges of pharmacy and departments of pharmacy of universities who may have been registered on their diplomas or by reason of being actively engaged in the retail drug business upon the passage of a pharmacy law, who have practiced for fifteen years since registration, may have their examinations passed in college accepted in lieu of an examination before the State Board.

The Association was unanimous in its opinion that some plan should be devised by which a pharmacist, who after becoming registered by reciprocity has allowed his original registration to lapse, should still retain the privilege of further reciprocity, providing he is at the time of making application in good standing in the state in which he is practicing. It was the recommendation

of the Association that this be handled by means of certification by the state in which the applicant is at that time in good standing, showing the facts concerning the original registration by examination upon which the state making certification had granted reciprocal registration.

It was requested by the Secretary of the Association that secretaries of the various state boards compile and submit to the N. A. B. P. historical data covering the progress of pharmacy in their respective states, this to be placed in the archives of the Association. This the Secretaries have agreed to do.

The recommendation of the Executive Committee to the effect that a Committee of three be appointed to formulate a plan of establishing uniform minimum standards for recognition of schools of pharmacy by members of the N. A. B. P. was unanimously adopted.

It was the unanimous sentiment of the Association that merit alone should justify the election of any member of the N. A. B. P. to the office of President. That "each and every one should allow his work and his deeds determine his fitness for the high honor. That it is regarded as unethical for any one to institute or consent to be instituted a campaign for the office of president, and if the work of a member has proven his fitness, the Association will find a way to reward him in due time. That this office should not be made a political one."

The suggestion offered by the Executive Committee to the effect that it might be expedient for the N. A. B. P. to arrange that future annual meetings be held in Chicago where the records of the Association are easily accessible, and where there would be no conflict in program with affiliated organizations, while presented as a matter of record, was virtually withdrawn, due to the completion, just prior to the presentation of this report, of satisfactory arrangements regarding future meetings, and the Secretary was authorized to take such action as might be necessary in order to arrange for Association meetings, as well as for such conferences as might seem desirable.

The following officers were elected for the ensuing year:

President, Edward H. Walsdorf, New Orleans, La.; *Treasurer*, J. W. Gayle, Frankfort, Kentucky; *Secretary*, H. C. Christensen, Chicago, Ill.

Vice-Presidents: District No. 1—H. M. Lerou, Norwich, Conn. District No. 2—A. C. Taylor, Washington, D. C. District No. 3—M. N. Ford, Columbus, Ohio. District No. 4—D. F. Dexter, Canton, S. D. District No. 5—W. J. Cox, Memphis, Tenn. District No. 6—J. F. Tilford, Wichita, Kans. District No. 7—E. L. Murray, Americus, Ga. District No. 8—F. E. Mortenson, Pueblo, Colo. District No. 9—C. Osseward, Seattle, Wash.

Executive Committee: L. L. Walton, Williamsport, Pa. *Syllabus Committee:* Expiring 1928—M. Noll, Topeka, Kas.

WHY DOES THE ASEXUAL FORM OF THE SAME INSECT GIVE RISE TO A DIFFERENT FORM OF GALL?

The *Chemist and Druggist*, July 8, 1922, page 65, refers to a curious and rare oak gall which occurs on the tips of the flowering twigs of *Quercus pedunculata* and *Q. sessiliflora*. This gall, which was noted as early as 1668, is known as the cotton or wooly gall. When fully matured it is the size of a cherry, but, because it shrinks to half this size, is seldom observed. The formation consists of an aggregation of small oval galls about 2 mm. long, each of which bears a tuft of white hairs, 15 to 20 mm. long. The gall is caused by the insect *Andricus ramuli*. The gall flies, which emerge late in June or early in July, are possessed of sex. In turn, this generation lays eggs in the axillary buds, and in October of same year gall without cottony hairs, of an elongated oval shape, with depressed spot at apex, and with brown sappy rind appear. These contain an agamic form of the insect.

A curious problem thus presents itself, *viz.:* Why does the asexual form of the same insect give rise to a different form of gall? Does it secrete a fluid with different stimulating properties, the one forming parenchymatous, the other prosenchymatous tissue? The question offers an interesting field of investigation.

REPORT OF THE FAIRCHILD SCHOLARSHIP COMMITTEE.

To the Joint Meeting of

The American Conference of Pharmaceutical Faculties,
The National Association of Boards of Pharmacy,
The Section on Education and Legislation A. Ph. A.
Cleveland Meeting 1922.

The Fairchild Scholarship Committee is composed of the President of the American Pharmaceutical Association, the President of the American Conference of Pharmaceutical Faculties, the President of the National Association of Boards of Pharmacy; the Editor of the JOURNAL OF THE AMERICAN PHARMACEUTICAL ASSOCIATION is the Chairman of the Committee. In providing for this scholarship Mr. Samuel W. Fairchild asked that the Committee be so constituted. The Committee desires to serve and therefore welcomes instructions.

At the joint meeting in New York City the bodies here represented adopted the following recommendations unanimously:

> "The Fairchild Scholarship is to be awarded by a competitive examination to candidates who are high school graduates, and who have completed their first year work in a School or College of Pharmacy, member of the American Conference of Pharmaceutical Faculties, and each School or College shall be limited to two candidates."

Relative to these instructions several questions have come up:

1. Shall a student be accepted as candidate for the Fairchild Scholarship who completed his first year in Pharmacy several years prior to the time of asking to be admitted to the examinations, or shall only those be admitted who have just completed their first year in a School or College of Pharmacy?

Only once this question has come up and it was ruled that only those shall be admitted who have *just* completed their first year in a School or College of Pharmacy.—This ruling will stand unless you instruct otherwise.

2. Shall the candidate have any other collegiate education except that received in a College of Pharmacy? The Committee endeavored to secure definite instructions relative to that question? The majority objected to the acceptance of candidates who had completed the premedical course, prescribed by Medical Colleges, and the Committee requested that no candidate be admitted to the Examinations this year who had taken such premedical course.

Another question was propounded to the Committee—Shall a candidate be admitted who holds the degree of Master of Science?

The Committee decided against the admission of such candidates, but would like to have your instructions for further action. Either the examinations should be open to all who have just completed their first year in a School or College of Pharmacy or should be restricted to those who have had no other collegiate training than that received in a College of Pharmacy. Liberty is taken in quoting from two letters, in a degree, on opposite sides of the question:

> The first—"To make the examination absolutely fair, it should be confined to students who have completed their high school work and have gone from that into Pharmacy. Just as soon as you admit Liberal Arts work you introduce a factor of unfairness and it is quite difficult to draw the line in regard to one, two, three or four years. So my judgment would be that this examination should be confined to first year Pharmacy students who have completed high school work."
>
> The other—"It seems to me that any student who completes the first year of a pharmacy course in a Conference College should be deemed eligible to the Fairchild scholarship, and should not be debarred on the grounds of having had collegiate training outside of pharmacy. It seems to me that it would be a pity to put a premium upon the minimum qualifications for entrance, and not upon the maximum. We are very desirous that our students obtain the best possible general education which may be available to them, and we certainly would not think for a moment of disqualifying students, who have had additional college training, from any of our own college prizes. Nor will the world debar them from success because of college training. We should remember that the Fairchild Scholarship is not given to any school, but is bestowed upon an individual. And the Scholarship Examination should not in any way be converted into an intercollegiate contest."

The Committee asks for your instructions.

Relative to Examination Questions the members of the Committee have largely relied on members of the American Conference of Pharmaceutical Faculties. The first set of questions were, as you know, prepared by and under the direction of one of its honored Ex-Presidents, Prof. Henry Kremers, and also Ex-Chairman of its Committee on Examination Questions; last year the questions were prepared by and under the direction of Dr. Edsel A. Ruddiman, also a former Chairman of the latter Committee.

There was a request from a number of Schools that questions be asked only on subjects included in the first year of the Pharmaceutical Syllabus. A letter from a Conference member notes the point:

> "On bringing before our Faculty the proposition of coöperating in reference to the Fairchild Scholarship, it developed that subjects are introduced into the examination that are not included in the first year of the National Syllabus. While it would not be necessary to include all the subjects of that Syllabus, if deemed inexpedient, it certainly seems that no other should be introduced, since that would be placing a handicap on the schools which complied with this work, the only authority that we have."

At the meeting in New Orleans you were advised that only the subjects of the first year Syllabus would be used in preparing the questions for 1922. And this was done. The Chairman, however, desires to direct your attention again that the average of the candidates last year in Pharmacy was 59.5 and in Materia Medica 58.5; the fifteen lowest averaged in Pharmacy 46.85, and in Materia Medica 46.9. But this is a matter of the past, the Committee will hereafter be guided in that respect by the Syllabus and hopes that all Schools and Colleges of the Conference will have candidates for the Scholarship in 1923.

The time for holding the examination seems satisfactory. Hereafter then, until otherwise instructed, the examinations for the Fairchild Scholarship will be held on the second Monday in June. The method of conducting the examinations and identifying the candidates is also satisfactory.

The Chairman mails out the questions by registered mail, and requests a return receipt—this checks the official of the School or College. The Chairman asked that the questions with answers be sent by registered mail to him and that he be asked to sign a receipt for same—this checks him. The compliance with this request was general, only one exception and this satisfactorily explained. Even with greatest care there is possibility of loss, and in this connection might be a disturbing element.

The questions were prepared this year by coöperation with Messrs. Louis Emanuel, H. C. Christensen, Dean Henry E. Kalusowski, and Dean Wm. B. Day. It should be noted that members of no faculties having candidates participated in this part of the work. The same caution was observed in the selection of those who graded the papers; they are: Professors William B. Day, Clyde M. Snow and A. H. Clark, and to all of them sincere thanks are extended.

There were fourteen candidates. The average of the fourteen candidates in Chemistry was 64.64 plus; the lowest 48, the highest 84. The average in Pharmacy was 74.21 plus; the lowest 64, the highest 90. Pharmaceutical Arithmetic 66.64 plus; the lowest 37, the highest 100. Botany, etc., average 72.57 plus; the lowest 57, the highest 88.

The highest records were in Pharmacy; namely, 74.21 plus, followed, however, very closely by Botany, etc., 72.57 plus. Pharmaceutical Arithmetic comes next with 66.64 plus. The lowest records were in Chemistry, 64.64 plus.

The four highest records are the following:

Chemistry.	Pharmacy.	Pharm. Arith.	Botany, etc.	Average.
84	90	95	88	89.25
76	84	98	73	82.75
80	80	79	86	81.25
64	82	100	57	75.75

You will note that the one making the highest record was highest in all the branches excepting Pharmaceutical Arithmetic. The one leading him in that branch, however, made much lower records in other branches, averaging 75.75, notwithstanding his 100 in Pharmaceutical

Arithmetic. The one making the highest average has 90 in Pharmacy and 84 in Chemistry. The candidate fifth in line made an average of 69.

In making further comparisons between two candidates of the same school, we find that in two of the schools the high man was highest in all the branches. In two other schools each was high in two branches, but the *low* man was much lower in two, thus lowering his average. The low man in Botany, etc., was 8th in Chemistry, 2nd in Pharmacy, at the head in problems. Of the same school the other candidate was 8th in Botany, 4th in Chemistry, 3rd in Pharmacy, 2nd in Problems; they run close together in Problems and Pharmacy. These are about the only other deductions possible between two candidates of the same school.

The high man in Chemistry was high in 3 branches, and 3rd in problems. The low man in Chemistry was 5th in Pharmacy. More went above the average in Botany than in any of the other branches—9 above, 5 below. In Chemistry there was a balance of 7 and 7; in Pharmacy 5 went above the average and 9 below; in Pharmaceutical Arithmetic 6 above and 8 below.

The Committee was unanimous in the selection of Joseph J. Pfiffner of Dubuque, Iowa, to be awarded the Fairchild Scholarship for 1922. Mr. Pfiffner was born in Dubuque, June 24, 1903, therefore, 19 years of age. His high school education was obtained at Columbia Academy, of his native city. His entrance credits at the University of Iowa, College of Pharmacy, 1921 (from High School), showed an average of over 97 for all branches. He earned grade "A" in all branches at the College of Pharmacy. In the Fairchild Scholarship examination he made a general average of 89.25—Chemistry 84, Pharmacy 90, Pharmaceutical Arithmetic 95, Botany, etc., 88. On June 6, Dean Wilber J. Teeters advised the Chairman as follows: "Our candidate has just completed one year's work and came here direct from high school in Dubuque." The other information given relating to the candidate was obtained July 31, 1922.

Asking for your coöperation during the coming year, and thanking you,

Respectfully submitted,

S. L. HILTON, *President, American Pharmaceutical Association.*
CLAIR A. DYE, *President, American Conference of Pharmaceutical Faculties.*
L. L. WALTON, *President, National Association of Boards of Pharmacy.*
E. G. EBERLE, *Editor,* JOURNAL A. PH. A., *Chairman.*

ACTION OF THE JOINT SESSION—THE SECTION ON EDUCATION AND LEGISLATION, A. PH. A., AMERICAN CONFERENCE OF PHARMACEUTICAL FACULTIES; THE NATIONAL ASSOCIATION OF BOARDS OF PHARMACY—ON THE REPORT OF THE FAIRCHILD SCHOLARSHIP COMMITTEE.

It was voted that candidates for the Fairchild Scholarship shall have just completed their first year in a School or College of Pharmacy, member of the American Conference of Pharmaceutical Faculties.

The candidates shall have successfully completed the 4-year high school course, and no additional training or education shall debar them from admission to the examinations; the purpose of the candidates being to continue the study of pharmacy.

The questions asked of the candidates shall be based on the first year of the "Pharmaceutical Syllabus." The next examination for the Fairchild Scholarship will be held June 11, 1923; if deemed advisable, the examinations will be extended over two days instead of completing the work in one day.

The chairman was requested to send to each participating school, of this year—1922, a report of the grades made by respective candidates; *i. e.*, each school or college is advised only relative to its own students.

BIBLIOGRAPHY OF PHARMACEUTICAL RESEARCH

Conducted by H. V. Arny, Reporter on the Progress of Pharmacy, Chairman of the Committee on Research.

On these pages, each month, will be found a list of articles on pharmaceutical research; the list appearing a certain month will record articles appearing in American journals of the preceding month and articles appearing in foreign journals will be recorded as quickly as possible after the journals reach the Reporter.

All articles appearing in these lists will be presented in abstract form in the bound volumes of the YEAR BOOK which will be issued as soon after the end of the year represented as editing and printing conditions permit. Those desiring abstracts immediately can obtain same for a fee of one dollar each by communicating with H. V. Arny, 115 West 68th St., New York, and arrangements can also be made for securing photographic reproductions of entire articles at moderate prices when such are desired.

PHARMACEUTICAL PREPARATIONS.

Droste
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Stich
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COUNCIL BUSINESS

A. PH. A. COUNCIL LETTER NO. 18.
(Abstract.)

WASHINGTON, D. C., August 4, 1922.

To the Members of the Council:

90. Applicants Nos. 391–430 elected to active membership.

91. Election of active members: No. 431, Chase W. Brown, 111 E. Main St., Chanute, Kansas; No. 432, I. Don Gray, 324 N. Broadway, Pittsburg, Kansas; No. 433, David I. Macht, Johns Hopkins Med. School, Baltimore, Md.; No. 434, Otto Svec, 4153 East 123d St., Cleveland, Ohio; No. 435, Albert John Miller, 3620 4th St., Des Moines, Iowa; No. 436, Basil Robinson Hess, 1617 8th Ave., Fort Worth, Texas; No. 437, Robert C. McClellan, Mulberry, Kansas; No. 438, Charles Henry Pinnell, 1010 Noble St., Anniston, Alabama; No. 439, Frederick William Heyl, 526 Axtell St., Kalamazoo, Mich.; No. 440, Edwin Horace Thompson, 212 South Main, Ottawa, Kansas; No. 441, F. W. Fitch, 15th & Walnut, De Moines, Iowa; No. 442, Jalmar O. Skei, Astoria, Oregon; No. 443, Eugene Freeland Rimmer, Charlotte, North Carolina; No. 444, William Peter Ullman, 206 E. Broadway, Granville, Ohio; No. 445, Frank Lorenzo Smith, Cuba, Ill.; No. 446, Hale Bedell Thompson, Main & Water Sts., Kent, Ohio; No. 447, H. E. Warner, 7–15 N. Clay, Coldwater, Mich.; No. 448, Chas. Hassig, 10th & Central, Kansas City, Kansas; No. 449, Carl Henry Frank Lembke, 271 W. Federal, Youngstown, Ohio; No. 450, Fred C. Gibson, 123 East Main St., Ravenna, Ohio; No. 451, Michael F. Skonieczkowski, 2199 W. 11th St., Cleveland, Ohio; No. 452, Nicholas Christopher Seuffert, 7 Greenwich Ave., New York, N. Y.; No. 453, Charles C. Haskell, 3606 Noble Ave., Richmond, Va.; No. 454, Harry G. Schmuelling, N. W. Cor. 5th & Sycamore, Cincinnati, O.; No. 455, George Jefferson Terry, Main St., Batesville, Ark.; No. 456, Charles G. Piercy, 170 Donaldson St., Columbus, Ohio; No. 457, Chas. J. Slezak, 4125 E. 71st St., Cleveland, Ohio; No. 458, John J. Douttiel, 3819 Payne Ave., Cleveland, Ohio; No. 459, Oscar James Wilson, Reed and Aster Sts., Akron, Ohio; No. 460, F. J. Hoffner, c/o Rexall Drug Store, Geneva, Ohio; No. 461, Omar C. Joss, 1915 Penrose St., Cleveland, Ohio; No. 462, John A. Mitermiler, 10429 St. Clair Ave., Cleveland, Ohio; No. 463, Charles Albert Veach, Centerville, Iowa; No. 464, Ralph D. Mantica, Cor. South and Fifth Sts., Steubenville, O.; No. 465, Jacob P. Hagen, 11700 St. Clair Ave., Cleveland, Ohio; No. 466, Robert Kodet, 404 E. 71st St., New York, N. Y.; No. 467, Peter Kadçl, 4010 Lorain Ave., Cleveland, Ohio; No. 469, Emily J. Fell, 52 East 41st St., New York, N. Y.; No. 471, Francis Marion Young, St. Clairsville, Ohio; No. 472, Lucien B. Hall, c/o The Hall Van Gorden Co., Cleveland, Ohio; No. 473, John Carey Scott, Bethel, Ohio, No. 474, Donald Moore, Florence, Kansas; No. 475, Herbert F. Dunning, Summerville, S. C.; No. 476, Walker Edwards Boyd, 1436 Main St., Columbia, S. C.; No. 477, Elmer Lionel Hammond, 413 Madison St., Chelsea, Mich.; No. 478, Edward Meyer, 309 N. Main St., Findlay, Ohio.

A. G. DUMEZ, *Secretary.*

EDITORIAL NOTES

Editor: E. G. EBERLE, Bourse Building, Philadelphia, Pa.

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GOSLAR, A MILLENIUM.

On July 18, 1922, the City of Goslar at the Harz Mountain, Germany, celebrated the thousandth anniversary of its foundation by King Henry I. A gala celebration, attended by prominent men from different parts of Germany, marked the occasion. The anniversary observances commenced in the venerable Kaiserhaus, built by Henry III in 1050 and said to be the oldest secular building in Germany. A historical pageant several miles long paraded the streets, followed by a large folk-picnic on the mountain-side and in the evening a folk-play presented by local talent.

Goslar is also of importance in the chemical and pharmaceutical world. It is the seat of an extensive mining industry. In the time of Otto the Great immense ore deposits were discovered in the nearby Rammelsberg, which were then mined since 968. The principal products are silver together with a little gold, copper, lead, sulphur and the manufacture of sulphuric acid. About one thousand people are employed in this industry. Goslar also became famous through the "Goslar Gose" a nutritious and tasty beer, brewed from wheat.

Of pharmaceutical importance is the fact that Goslar is the home of the celebrated German pharmaceutical historian, Dr. Julius Berendes. After Deger's Apotheke in Goslar was sold in 1887, which Berendes managed, he retired from active pharmaceutical practice and devoted himself to literary activities, which were so important that the State honored him in 1902 with the title "Professor." From his many works I might mention the following:

"Die Pharmazie bei den alten Kulturvölkern," 2 vol., Halle, 1901.

"Der Angehende Apotheker," 2 vol., Stuttgart, 3 ed., 1903.

"Die Arzneimittellehre des Dios kurides," Stuttgart, 1902.

"Das Apothekerwesen," Stuttgart, 1907.

Being born in 1837, Berendes is almost 85 years old. May the German pharmaceutical historian continue to live many more years.

It is the object of this little sketch to bring forth the importance of Goslar in the chemical and pharmaceutical field, in connection with its thousandth anniversary.

—OTTO RAUBENHEIMER.

Abstracts by the authors of a few of the papers presented before various Sections at the Cleveland Meeting follow:

COL. MAY'S JOURNEY TO THE OHIO COUNTRY 1788–89.

BY EDWARD KREMERS.

That the cargo of the first ship leaving an American port for China after the Revolution consisted of ginseng is a matter of prime importance economically and commercially; for, as an economist of that period remarks, this drug enabled the early citizens of the new United States of America to secure two luxuries, tea and silk, without having to pay therefor in gold, of which there was but little, but by offering ginseng in exchange, of which there was an abundance in their primeval forests. The letters of Col. May reveal the additional fact of prime importance; namely, that ginseng served as substitute for money. Hence the "Journal" not only throws additional light on the way the ginseng traffic was carried on, but also reveals that it was used as a common substitute for coin, the fluctuating value of which could make or unmake the traveling merchant, who, in the absence of telegram and regular mail service, appealed to his friends in the sea ports to keep him posted as to the rate of exchange so that he might carry on a successful business.

THE EFFECT OF LARGE DOSES OF CANNABIS INDICA.

BY ALBERT SCHNEIDER.

The tests made would indicate that large doses of Cannabis extract have a profound effect upon the imaginative faculties. The lower or animal faculties are apparently neither stimulated, nor dulled. The higher faculties are not stimulated but the ability to concentrate is inhibited. A most remarkable color imagery, kaleidoscopic shifting of scenery, of thoughts and of ideas, memory lapses, dual nature concepts, complete loss of identity, etc., follow the use of the drug. The effects appear to be extremely variable even in one and the same individual. No harmful after-effects were experienced. The diuretic effects are marked.

The extreme psychic effects produced by Cannabis suggest that it would be of great value in the study of psychology, of psychiatry and in certain phases of criminology and of pathological states of the mind.

HOT EXTRACTION.

BY WILBUR L. SCOVILLE.

Percolation by hot menstrua has been tried on a number of drugs with the following results. (1) For weakly alcoholic or aqueous menstrua hot extraction is of marked advantage on drugs containing a considerable proportion of albuminous matter which is coagulated by the heat and so rejected from the preparation. (2) Drugs containing much starch are not satisfactorily extracted hot because the starch is gelatinized and interferes with extraction. (3) Strongly alcoholic menstrua may act more quickly upon the drug when hot than when cold, but subsequent precipitation in the preparation is increased and other disadvantages offset the benefit of the hot extraction.

SODIUM CHLORIDE.

BY H. L. HARRIS.

The author after discussing in general the consumption of salt and recent views expressed in literature concludes that sodium chloride is not the innocent condiment it is supposed to be, and that it is not an essential substance for the welfare of the human system.

PHARMACO-THERAPEUTIC INSTITUTIONS.

BY F. E. STEWART.

The term "institution" is used in the broad sense defined in the dictionary to include anything which is instituted or established. The science and art of pharmacology are pharmaco-therapeutic institutions, also the educational and industrial institutions related thereto—medical and pharmaceutical societies, press, schools, and colleges, hospitals, dispensaries, drug stores, doctors' offices, and the practitioners of pharmacy and pharmaco-therapy.

Progress in the science and arts of pharmacology, as defined in the Pharmaceutical Syllabus, is dependent upon coördination and coöperation between these educational and industrial institutions. Certain misapprehensions stand in the way. They are described, and a plan for removing them suggested.

ANOTHER SUPPLEMENT OF THE FRENCH CODEX.

Seven new preparations have been included in the New Supplement of the French Codex; they are: colloidal silver, containing a minimum of silver in combination with protein substances; heroine hydrochloride; emetine hydrochloride; dionine; thiocol, sodium perborate, and zinc peroxide.

THE UNIVERSITY FACULTY OF PHARMACY AND CODEX REVISION.

A Ministerial ordinance dated May 20, 1922, assigns to the Central Laboratory for research work and analysis of medicinal and hygienic products of the Faculty of Pharmacy in the University of Paris the carrying out of all investigations and research work required to be undertaken by the Commission of the Codex in the preparation of Supplements to the Codex. This work is to include the identification of products and tests for the purity of the same, as well as the detection of adulterations to which they may be subject. The Chief of the Laboratory for research work and analysis of medicinal and hygienic products becomes *ex-officio* a member of the Commission of the Codex. This step is of considerable importance since it proves that the authorities appreciate the importance of keeping the Codex up to date, and have the earnest intention of continuing the work already begun by entrusting it to the Faculty of Pharmacy of Paris, of which the late Professor Bourquelot was one of the most distinguished members. In this school interest in this work will be kept alive, to the advancement of science and the honor of French pharmacy.—*The Pharmaceutical Journal and Pharmacist*, August 12, 1922, p. 162.

PERSONAL AND NEWS ITEMS.

Many faces familiar to pharmacists were seen at the American Chemical Society meeting in Pittsburgh, and the programs of several

Divisions were made interesting by those who contribute largely to the work at the American Pharmaceutical Association. On Wednesday, September 6, W. F. Rudd was on the program, subject—"Dental Chemistry," and that of John C. Krantz, Jr., was "Pharmaceutical Chemistry."

The foregoing were part of the program relating to Chemical Education in which the entire subject of the correlation of high school and college chemistry was covered in papers and discussions. Dr. Edgar Fahs Smith was chairman of the Section.

In the Division of Chemistry of Medicinal Products the following among other A. Ph. A. members were active: Charles E. Caspari, Oliver Kamm, David I. Macht, Frank R. Eldred, A. R. Bliss, Jr., Herbert C. Hamilton.

Joseph J. Pfiffner, Dubuque, Iowa, winner of Fairchild Scholarship for 1922–1923.

VETERAN PHARMACISTS DINE.

A pleasant function of the recent Cleveland A. Ph. A. meeting, as a side feature, was a quiet little dinner at the Cleveland Athletic Club, tendered by Thos. D. McElhenie, as the youngest of the lot, to the "Survivors" of the A. Ph. A. Cleveland meeting of 1872.

There were present Mr. and Mrs. Lewis C. Hopp of Cleveland, Mr. and Mrs. Jos. L. Lemberger of Lebanon, Penna., Miss Ward of Cleveland, Daniel Myers of Cleveland, James Robinson of Memphis, Tenn., and Thos. D. McElhenie of Brooklyn.

After enjoying an excellent dinner, interesting bits of reminiscence were elicited from Messrs. Lemberger, Hopp, Myers and Robinson, and Mr. McElhenie ended with reading "Thanatopsis," after telling the company that this poem was read by Geo. P. Englehard at the funeral of Albert E. Ebert, who was elected President of the American Pharmaceutical Association at the meeting in 1872.

Courtesy Apotheker Zeitung

Left to right: Ambrose Hunsberger, President N. A. R. D.; H. M. Whelpley, former Treasurer A. Ph. A.; S. L. Hilton, retiring President, A. Ph. A.

The National Association of Retail Druggists was well represented at the Cleveland Meeting of the American Pharmaceutical Association. Perhaps it should not be stated in that way, because those referred to are just as loyal members and as deeply interested in the success of the American Pharmaceutical Association as those whose activities are for the time more directly given to the latter. It is only a purpose to point out their official connection with the before-mentioned organization. There were present and seated on the stage—President Ambrose Hunsberger, Secretary Samuel C. Henry, and Ex-President James F. Finneran; Attorney E. C. Brokmyer was also present. Many of the most active members are interested in both associations and a further attempt to name others would run through the list of those in attendance. The spirit of coöperation has always been in evidence and now there is a stronger realization of the need for coördinated endeavor.

In the selection of candidates for the presidency of the American Pharmaceutical Association, South, North and East were drawn

upon—Frank Schachleiter of Arkansas, Samuel L. Antonow of Illinois and H. V. Arny of New York.

The Northern Ohio Druggists' Association has a real poet, and he has been crowned "Poet Laureate" by the former Association and commended by the American Pharmaceutical Association. Not only did the lines add interest to the occasion, but real enjoyment; the accompaniment was invariably splendid, and encores were frequent. Carl Winter won't be stalled, and here are lines to prove it.

PRESIDENT-ELECT KOCH.

You'd think that our new President's name
Would surely rhyme with Foch.
But it doesn't; and so this verse is lame,
The sentiment's blooey, the sense the same.
But what would you have, oh, gosh.

The Local Committee members were not "Evan" afraid of the Treasurer for they looked for him according to the tune "Has anybody here seen Kelly" and that they were sincere was shown by passing to him through Chairman J. H. Beal $500.00 for A. Ph. A. headquarters.

The danger in passing compliments is to fail to name some one who showed in a quiet energetic way, behind the scenes, etc., so in speaking of the Local Secretary all are meant and none are to be omitted as deserving of unstinted praise for the untiring, constant and efficient preparation for the meeting, and bringing the seventieth annual convention of the American Pharmaceutical Association to a successful conclusion. Few if any hotels have better convention accommodations than the Statler.

J. Bertram Lippincott, a publisher well known to pharmacists, recently celebrated his sixty-fifth birthday by giving a river excursion and picnic to his employees.

Elmer H. Wirth, for some time with F. F. Ingram Company of Detroit, will be instructor of Pharmacognosy at the University of Illinois School of Pharmacy.

Mr. and Mrs. John G. Godding, after the Cleveland Convention of the American Pharmaceutical Association, left for their summer home in Maine, among the Moosehookmeguntic and Cupsuptic lakes.

Mr. Frederic William Gamble is the first chairman, under the new auspices, of the British Pharmaceutical Conference. He was awarded, at the time of his graduation, the British Pharmaceutical Society bronze medal in the Pareira Competition. He is a director of Allen at Hanburys. Mr. Gamble has been a member of the executive committee of the British Pharmaceutical Conference since 1910; he was active in the preparation of the former edition of the British Pharmaceutical Codex and is sharing the work of the present revision.

Professor Perrot, of the Paris Faculty of Pharmacy, and M. Gentil have published in book form the results of their journey in Morocco last year. Among the papers included are "Plants in Nature Therapeutics," by M. J. Gattefossé; "Indigenous Animal and Mineral Drugs and Imported Vegetable Drugs," by M. M. Perrot and Gattefossé; and "The Use of Natural and Chemical Dyes in Morocco," by Madame Dufougère, ex-professor at Rabat College.

"COMMERCIAL PHARMACY" IN FRANCE.

According to the *Chemist and Druggist* (August 5, 1922, p. 192) M. Bridon, in a report of the Legislation and Prudence Committee of the General Association of French Pharmacists, states: "The tendency increasingly marked of commercial pharmacies is to do a pharmaceutical drug-trade, selling at wholesale rates, or to take up side-lines, articles having little to do with therapeutics or hygiene, such as mineral waters, proprietary goods, photographic wares, and even dietary substances. This is the real reason of the large turnovers of the commercial pharmacies of which they boast so much, but which do not really represent pharmaceutical business."

OBITUARY.

We have been advised of the death of the father of Dr. A. G. DuMez, Secretary of the Council and Reporter on the Progress of Pharmacy. The sympathy of the members of the American Pharmaceutical Association is extended to our fellow-member and co-worker, and other members of the family.

THEODORE R. L. LOUD.

Theodore Richard Loockerman Loud, vice-president and sales manager for the New York Quinine & Chemical Works, Inc., member of the American Pharmaceutical Association, was instantly killed Saturday afternoon, August 19, in an automobile accident near Trenton, N. J.

With other members and employees, Mr. Loud was on his way to Atlantic City. The machine skidded off the highway on a sandy stretch of road, throwing Mr. Loud out of the car. He struck on his head and sustained fatal injuries; others with him were badly shaken but no one else very seriously hurt, although the chauffeur suffered a compound fracture of one leg.

Mr. Loud was born in Easton, Maryland, 64 years ago. One of his first positions in the drug and chemical line was with Coffin-Redington of San Francisco. He was then later connected with Merck & Company, New York, where he spent twelve years as Manager of Sales. Subsequently he went to the National Aniline & Chemical Company and Mallinckrodt. For two years prior to his connection with the New York Quinine & Chemical Works, he was Advertising Manager for New York State of the Butterick Publications. He made a great success as Vice President and General Manager of the New York Quinine & Chemical Works, and his death is deplored and mourned by everyone connected with this business. He had a great faculty for t aining the younger people under him. He was a great teacher. As a result of this faculty, he always had around him a loyal organization and was thus able to achieve results. He was a man of great personal charm, and he had friends in every town and city of the United States.

Surviving Mr. Loud is his wife, Eunice Chase Loud.

MELMOTH MERCER OSBORNE.

Melmoth M. Osborne died at Philadelphia, July 25, aged 67 years. He was educated in private schools and graduated from the Philadelphia College of Pharmacy, class of '84. He learned the business with and worked during his earlier years in Blair's, Hubbell's, Galbraith's (Atlantic City), and Remington's & Sayre's pharmacies. He believed thoroughly in ethical pharmacy, always maintained it in his own place and limited his business almost exclusively to prescriptions and related lines. Making a specialty of prescriptions, he planned and built the "Elkins Park Pharmacy," the Prescription Department being a specially constructed wing, yet immediately accessible, and was notable for its roominess, stock, convenience and lighting.

He never displayed or recommended a "patent medicine," keeping them under cover for those who wanted them. He was a pioneer advocate of shorter hours in the business, talking, writing and practising his firm belief that shorter hours, including closing most of Sunday and holidays in the year, were practicable in all but rare exceptions.

He closed at 8 P.M., and on Sundays was open for medicines and neces aries only, for two hours in the morning and one in the evening.

He found pleasu e in writing occasional papers, and he had little t ouble in expressing his views. He was the youngest son of the late Richard B. Osborne, a civil engineer of prominence in the last generation, who was chief engineer of the Philadelphia & Reading main line during construction, and who laid out and named Atlantic City. He came of an old English family.

Mr. Osborne was helpful and sympathetic with the good clerk, but had no use for the shiftless, careless uninterested one.

The deceased was single, and of a family of seven brothers and sisters, three brothers survive. He joined the AMERICAN PHARMACEUTICAL ASSOCIATION in 1906. J. G. O.

SOCIETIES AND COLLEGES.

List of Registrants, Members of the American Pharmaceutical Association, and members of their families in attendance at the Seventieth Annual Convention, A. Ph. A., Cleveland meeting. Corrections and additions respectfully requested; please address the JOURNAL, 253 Bourse Building, Philadelphia, Pa.

AMES, FRED W., New Orleans, La.
ANDERSON, MR. AND MRS. W. C., Brooklyn, N. Y.
ANTONOW, S. L., Chicago, Ill.
ANTONY, CHAS. W., Canton, Ohio.
ARNY, H. V., New York City.
AUSTIN, MRS. W. B., Charleston, S. C.
AVERY, MR. AND MRS. CHAS. H., Chicago, Ill.
BACHMAN, GUSTAV, Minneapolis, Minn.
BACKUS, E. J., Chicago, Ill.
BADER, MR. AND MRS. F. H., Cleveland, Ohio.
BAGLEY, MISS ANNA G., Columbus, Ohio.
BALLARD, C. W., Brooklyn, N. Y.
BARRETT, B. S., Cleveland, Ohio.
BAUER, MR. AND MRS. J. M., Cleveland, Ohio.
BAUER, MISS ELSIE M., New York City.
BEAL, MR. AND MRS. J. H., Urbana, Ill.
BEAL, GEORGE D., Urbana, Ill.
BEARD, J. G., Chapel Hill, N. C.
BENFIELD, MR. AND MRS. H. E., Cleveland, Ohio.
BENFIELD, W. E., Cleveland, Ohio.
BENFIELD, MISS MARGARET, Cleveland, Ohio.
BERG, F. F., Brooklyn, N. Y.
BERGER, MR. AND MRS. E., Tampa, Fla.
BERGER, MR. AND MRS. S., Cleveland, Ohio.
BERGY, GORDON A., Morgantown, W. Va.
BEUTEL, G. H., St. Louis, Mo.
BIBBINS, F. E., Indianapolis, Ind.
BLAKE, LYNN S., Auburn, Ala.

BLAKESLEE, L. G., St. Louis, Mo.
BLOOM, MRS. A., Cleveland, Ohio.
BLUMENSCHEIN, MR. AND MRS. F. J., Pittsburgh, Pa.
BOLLINGER, C. H., Cleveland, Ohio.
BOOTH, C. F., Buffalo, N. Y.
BRADLEY, THEODORE J., Boston, Mass.
BRADLEY, WILLIS, Boston, Mass.
BREIDENBAC , MORRIS, Cleveland, Ohio.
BROKMYER, E. C., Washington, D. C.
BROOKS, F. A., Cleveland, Ohio.
BROWN, CLARENCE M., Columbus, Ohio.
BUCH, MISS SUZANNA M., New York City.
BUCHHARDT, MR. AND MRS. R. G., Cleveland, Ohio.
BUCKSTEIN, MR. AND MRS. JACOB, Cleveland, Ohio.
BUNTING, MR. AND MRS. GEO. A., AND DAUGHTER, Baltimore, Md.
BURGESS, JOHN, Toronto, Canada.
BURRIER, MISS ANNA ZOE, Pittsburgh, Pa.

CAMERON, MR. AND MRS. R. C., Cleveland, Ohio.
CAMPBELL, CLARENCE B., Jackson, Mich.
CANIS, OTTO F. A., Far Rockaway, N. Y.
CASPARI, MR. AND MRS. CHAS. E., St. Louis, Mo.
CASPARI, MISS F. L., St. Louis, Mo.
CASPARI, C. E., JR., St. Louis, Mo.
CASSADAY, O. U., Youngstown, Ohio.
CERMAK, FRED, Cleveland, Ohio.
CERMAK, JOSEPH, Cleveland, Ohio.
CHAMBERLAIN, N. T., Cleveland, Ohio.
CHAPMAN, J. W., Cleveland, Ohio.
CHRISTENSEN, MR. AND MRS. H. C., AND DAUGHTER, Chicago, Ill.
CHURCHILL, A. P., Cleveland, Ohio.
CLARK, LESTER J., Akron, Ohio.
CLAYTON, CHAS. J., Denver, Colo.
COHN, HARRY, Cleveland, Ohio.
COLE, MISS B. OLIVE, Baltimore, Md.
COLLINS, MRS. F. A., Akron, Ohio.
CONRAD, MR. AND MRS. A. F., Cleveland, Ohio.
COOK, MR. AND MRS. E. FULLERTON, Philadelphia, Pa.
COOKE, LAWSON J., Goodland, Ind.
COOPER, MISS ZADA M., Iowa City, Ia.
COULTER, G. M., Clarksville, Tenn.
COVERT, B. H., Londonville, Ohio.
COX, MR. AND MRS. W. J., Memphis, Tenn.
CRAWFORD, MRS. A. P., Chicago, Ill.
CROCKETT, W. G., Richmond, Va.
CROWE, R. L., Memphis, Tenn.
CULLEY, JOHN, Ogden, Utah.
CURRENS, MR. AND MRS. TURNER F., New York City.

DAY, MR. AND MRS. WM. B., Chicago, Ill.
DAVY, MR. AND MRS. EDWARD, Cleveland, Ohio.
DECKER, GEORGE, New York City.
DEEM, DAVID F., Stark, Kas.
DEXTER, D. F., Canton, So. Dak.
DICKSON, MR. AND MRS. F. W., Baltimore, Md.
DIEKMAN, GEORGE C., New York City.
DILLY, MR. AND MRS. O. C., Louisville, Ky.
DINER, JACOB, New York City.
DOLLINGER, MRS. GEORGE, Cleveland, Ohio.
DORN, FRANK G., Cleveland, Ohio.
DOUGLAS, FRANCIS, Elgin, Ill.
DOYLE, MR. AND MRS. R. A., East Prairie, Mo.
DRIGGS, K. H., Cleveland, Ohio.
DRURY, W. R., Glouster, Ohio.
DU BOIS, W. L., Catskill, N. Y.
DU BOIS, MISS C. I., Catskill, N. Y.
DU MEZ, MR. AND MRS. A. G., Washington, D. C.
DUNCAN, CHESTER A., Dallas, Texas.
DYE, C. A., Columbus, Ohio.

EATON, H. E., Des Moines, Ia.
EBERLE, E. G., Philadelphia, Pa.
EDELBUTE, MR. AND MRS. N. G., Topeka, Kas
EDDY, CLYDE L., New York City.
EFROS, MR. AND MRS. M., Cleveland, Ohio.
EHLERS, CHARLES, Cincinnati, Ohio.
EJBL, MR. AND MRS. J. J., Cleveland, Ohio.
EJBL, O. B., Cleveland, Ohio.
ELDRED, FRANK R., New York City.
EMANUEL, MR. AND MRS. LOUIS, Pittsburgh, Pa.
EMRICH, MRS. J. R. Cleveland, Ohio.
EMRICH, MISS E., Cleveland, Ohio.
ENGELHARDT, H., Baltimore, Md.

FANTUS, BERNARD, Chicago, Ill.
FINNERAN, JAMES F., Boston, Mass.
FLANDERMEYER, MR. AND MRS. A. L., Cleveland, Ohio.
FLANDERMEYER, C. H., Cleveland, Ohio.
FLETCHER, C. NORMAN, Lakewood, Ohio.
FORD, M. N., Columbus, Ohio.
FORD, W. H., Cleveland, Ohio.
FORREST, R. O., Cleveland, Ohio.
FOX, MR. AND MRS. N. M., Cleveland, Ohio.
FRANCIS, MR. AND MRS. H. S., Cleveland, Ohio.
FRANCIS, J. M., Detroit, Mich.
FRANCIS, MISS JULIA, Detroit, Mich.
FREERICKS, FRANK H., Cincinnati, Ohio.
FRENCH, MR. AND MRS. FRANK P., Tilton, N. H.
FROST, MR. AND MRS. W. A., St. Paul, Minn.

GARRETT, MR. AND MRS. H. C., Cleveland, Ohio.
GARRETT, MR. AND MRS. O. N., Hillsboro, Ohio.
GATHERCOAL, E. N., Chicago, Ill.
GAYLE, J. W., Frankfort, Ky.
GEGENHEIMER, MR. AND MRS. A. P., Cleveland, Ohio.
GEIGER, H. A. W., Cleveland, Ohio.
GEIGER, MISS KATE, Cleveland, Ohio.
GEIGER, OSWALD, S., Cleveland, Ohio
GERSON, M. M., Cleveland, Ohio.
GIETNER, CHARLES, St. Louis, Mo.
GODDING, MR. AND MRS. JOHN G., Boston, Mass.
GRAY, MRS. M. M., Chicago, Ill.
GRAY, WILLIAM, Chicago, Ill.
GREENSTONE, CHAS. A., Farrell, Pa.
GREGG, H. H., Minneapolis, Minn.
GREGORY, C. E., Sheridan, Ind.
GREGORY, WILLIS G., Buffalo, N. Y.
GREGORY, MISS LOUISE F., Buffalo, N. Y.
GRIFFITH, MR. AND MRS. IVOR, AND DAUGHTER, Philadelphia, Pa.
GROSSE, G. M., Cleveland, Ohio.
GROSSE, C. WALLACE, Cleveland, Ohio.
GROSSE, WILLIAM F., Cleveland, Ohio.
GUENTHER, MR. AND MRS. HARRY F., Cleveland, Ohio.
GUILBERT, O. W., Waterville, Minn.

HAAS, N. B., New Orleans, La.
HAGEMEISTER, MR. AND MRS. W. F., Cleveland, Ohio.
HAGEN, J. P., Cleveland, Ohio.
HAIRE, W. W., AND SON, Fort Dodge, Ia.
HAMILTON, MISS MARY R., Rochester, Pa.
HAMMOND, ELMER L., Morgantown, W. Va.
HANDY, J. A., Buffalo, N. Y.
HANKEY, MR. AND MRS. WM. T., Cleveland, Ohio.
HARRIS, H. L., New York City.
HARRISON, A. F., Newark, N. J.
HAUENSTEIN, Wm., New York City.
HAUSSAMEN, H. L., Grafton, No. Dak.
HAYES, R. E., Cleveland, Ohio.
HELBIG, F. J Cleveland, Ohio.
HENRY, SAMUEL C., Chicago, Ill.
HILTON, MR. AND MRS. S. L., Washington, D. C.
HLADKY, FRANK M., Cleveland Ohio.
HÖCKERT, B. E., Hartford, Conn.
HOGSTAD, ANTON, JR., Brookings, So. Dak.
HOLTON, MR. AND MRS. CHAS. W., Newark, N. J.
HOPP, MR. AND MRS. LEWIS C., AND DAUGHTERS, Cleveland, Ohio.
HOSTMANN, MR. AND MRS. JEANNOT, Hoboken, N. J.
HOWELL, E. V., Chapel Hill, N. C.
HUNSBERGER, MR. AND MRS. AMBROSE, Philadelphia, Pa.
HURST, R. O., Toronto, Canada.

JENKINS, ELIZABETH, Dayton, Ohio.
JONES, DAVID F., Watertown, So. Dak.
JONES, DAVID F., JR., Watertown, So. Dak.
JONES, M. A., Big Rapids, Mich.
JORDAN, C. B., Lafayette, Ind.
JORDAN, J. M., Charleston, S. C.
JUDISCH, GEO., Ames, Iowa.

KAGY, E. O., Des Moines, Iowa.
KANTROWITZ, HUGO, New York City.
KEBLER, MR. AND MRS. LYMAN F., Washington, D. C.
KELLY, MR. AND MRS. E. F., Baltimore, Md.
KENNEDY, E. J., New York City.
KING, MRS. WM. A., Cleveland, Ohio.
KISH, ALBERT T., Cleveland, Ohio.
KLAN, Z. F., Prague, Czechoslovakia.
KOBYLANSKI, MRS. AGNES M., Cleveland, Ohio.
KOBYLANSKI, Z. W., Cleveland, Ohio.
KOCH, JULIUS A., Pittsburgh, Pa.
KOON, CHARLES, S., Muskegon, Mich.
KRAEMER, MR. AND MRS. HENRY, Mt. Clemens, Mich.
KRAMER, ABRAHAM H., Brooklyn, N. Y.
KRAMER, ANNA S., Brooklyn, N. Y.
KREBS, CARL, Cleveland, Ohio.
KREMERS, EDWARD, Madison, Wis.

LA FAVRE, H. B., Lieut. U. S. Navy.
LALLANCE, L. A., Wheeling, W. Va.
LAWALL, CHARLES, H., Philadelphia, Pa.
LAWALL, MILLICENT R., Philadelphia, Pa.
LECHNER, ARTHUR C., Cleveland, Ohio.
LEHMAN, MR. AND MRS. R. S., New York City.
LEHR, KATHERINE, Miss, Cleveland, Ohio.
LEHR, PHILIP, Cleveland, Ohio.
LEMBERGER, MR. AND MRS. JOS. L., Lebanon, Pa.
LESSER, MR. AND MRS. L. A., Cleveland, Ohio.

LESSER, JEROME, Cleveland, Ohio.
LESSER, MR. AND MRS. D., Cleveland, Ohio.
LEWIS, HENRY, Madison, Wis.
LEWIS, J. C., Niles, Ohio.
LEWIS, LAWRENCE, Tuskegee, Ala.
LIVINGSTON, MISS MARGARET, Baltimore, Md.
LLOYD, JOHN URI, Cincinnati, Ohio
LLOYD, J. T., Cincinnati, Ohio.
LOESCH, ELLSWORTH, Cleveland, Ohio.
LUSTIG, MR. AND MRS. JACOB, Cleveland, Ohio
LYMAN, R. A., Lincoln, Neb.

MCELHENIE, THOMAS D., Brooklyn, N. Y.
MCGILL, W. J. Ann Arbor, Mich.
MCNAMARA, MISS ANNA, Detroit, Mich.
MCSHANE, O. W., Poultney, Vt.
MACHT, D. I., Baltimore, Md.
MACKAY, PAUL J., Cleveland, Ohio.
MANSFIELD, WILLIAM, Albany, N. Y.
MARTIN, JOHN E., Chicago, Ill.
MAWRER, MR. AND MRS. A. J., Cleveland, Ohio.
MAYO, CASWELL A., Cincinnati, Ohio.
MEISSNER, MR. AND MRS. F. W., Laporte, Ind.
MEREDITH, H. Lionel, Hagerstown, Md.
MILLER, L. P., Cleveland, Ohio.
MOOSBRUGGER, CARMEN, Dayton, Ohio.
MOOSBRUGGER, OTTO, Dayton, Ohio.
MORRISON, S. W., Iowa City, Ia.
MUHLHAN, OTTO, Cleveland, Ohio.
MULDOON, H. C., Valparaiso, Ind.
MURRAY, MR. AND MRS. E. L., Americus, Ga.
MYERS, H. M., Detroit, Mich.

NETZ, C. V., Owatonna, Minn.
NEWCOMB, E. L., Minneapolis, Minn.
NEWTON, H. E., Omaha, Neb.
NICHOLS, ADLEY B., Philadelphia, Pa.
NITARDY, F. W., Brooklyn, N. Y
NOEL, MR. AND MRS. H. S., Indianapolis, Ind.
NOLL, MATHIAS, Atchison, Kas.

O'LOUGHLIN, PETER A., Newark, N. J.
OSTERLUND, O. W., Philadelphia, Pa.

PACKARD, MR. AND MRS. C. HERBERT, Boston, Mass.
PAKE, C. E., Akron, Ohio.
PETERSILGE, MR. AND MRS. E., Cleveland, Ohio.
PIERCY, C. T., Columbus, Ohio.
PIESINGER, MARIE A., New Prague, Minn.
POE C. F., Boulder, Col.
POLLOCK, HENRY, Cleveland, Ohio.
PORTER, E. D., Akron, Ohio.
PORTERFIELD, W. P., Fargo, No. Dak.
PROCTOR, J. E., Wooster, Ohio.

RAABE, R. H., Ada, Ohio.
RABENSTEIN, MR. AND MRS. EDW., Cleveland, Ohio.
REED, MR. AND MRS. J. G., Cleveland, Ohio.
REED, MARGARET C., MISS, Cleveland Ohio.
RIEMENSCHNEIDER, J. H., Chicago, Ill.
RIGELHAUPT, MR. AND MRS. A., Cleveland, Ohio.
ROBINSON, JAMES S., Memphis, Tenn.
ROGERS, CHARLES H., Minneapolis, Minn.
ROGOFF, Elias M., Cleveland, Ohio.
RUDDIMAN, MR. AND MRS. E. A., St. Louis, Mo.
RUSBY, H. H., New York City.
RUTH, MR. AND MRS. ROBERT J., Elyria, Ohio.

SAALBACH, LOUIS, Pittsburgh, Pa.
SANTOS, JOSE K., Chicago, Ill.
SAYRE, L. E., Lawrence, Kas.
SCHACHLEITER, FRANK, Little Rock, Ark.
SCHAEFER, HUGO H., New York, City.
SCHAFER, MR. AND MRS. GEORGE H., Fort Madison, Ia.
SCHICKS, GEO. C., Valparaiso, Ind.
SCHMUELLING, H. G., Cincinnati, Ohio
SCHNEIDER, ALBERT, Portland, Ore.
SCOVILLE, MR. AND MRS. WILBUR L., Detroit, Mich.
SELZER, MR. AND MRS. EUGENE R., Cleveland, Ohio.
SERLES, MR. AND MRS. E. R., Brookings, So. Dak.
SHEEHAN, JOHN S., Memphis, Tenn.
SHERWOOD, H. J., Cleveland, Ohio.
SINNOTT, M. L., Newark, N. J.
SKINNER, J. A., Cedar Springs, Mich.
SMITH, HENRY B., Brooklyn, N. Y.
SNOW, MR. AND MRS. CLYDE M., Chicago, Ill.
SNYDER, MR. AND MRS. J. P., AND SON, Norwich, N. Y.
SPEASE, MR. AND MRS. EDWARD, Cleveland, Ohio.
STABLER, L. J., Los Angeles, Calif.
STANFORD, MR. AND MRS. E. E., Cleveland, Ohio.
STARR, MISS MABEL, Buffalo, N. Y.
STEIN, EDWARD E., Akron, Ohio.
STEINER, MR. AND MRS. ALEX., Cleveland, Ohio.
STEINER, M., Cleveland, Ohio.
STEVENS, ALVISO B., Escondido, Calif.
STOCKHAUS, F. WILLIAM, Cleveland, Ohio.
STOUT, E. P., Detroit, Mich.
STROUP, F. P., Philadelphia, Pa.
SUDRO, W. F., Fargo, No. Dak.
SUGDEN, J. F., Racine, Wis.

TEETERS, WILBER J., Iowa City, Iowa.
TERRY, MR. AND MRS. ROBERT W., Columbus, Ohio.
THOMPSON, HALE B., Kent, Ohio.
THOMPSON, HARRY L., Salt Lake City, Utah.
TINDALL, H. C., Excelsior Springs, Mo.
TOPP, J. W., Chicago, Ill.

VIEHOEVER, ARNO, Washington, D. C.

WALSDORF, MR. AND MRS. E. H., New Orleans, La.
WALTON, MR. AND MRS. L. L., Williamsport, Pa.
WARD, MISS ADELAIDE, Cleveland, Ohio.
WARDELL, MISS FRANCIS, Washington, D. C.
WAY, JAMES E., Jackson, N. Y.
WAY, MISS W., Jackson, N. Y.
WEBB, MR. AND MRS. E. N., Columbus, Ohio.
WEBSTER, MR. AND MRS. J. H., Detroit, Mich.
WEDEKIND, MISS E. M., Louisville, Ky.
WEIDNER, E. M., Birdsboro, Pa.
WETTERSTROEM, MR. AND MRS. THEODORE D., Columbus, Ohio.
WHEELER, MR. AND MRS. C. B., Hudson, Mass.
WHEELER, DAVID, Hudson, Mass.
WHELPLEY, MR. AND MRS. H. M., St. Louis, Mo.
WILLIAMS, SAM A., Troy, Ala.
WILLIAMS, MISS VIRGINIA C., Washington, D. C.
WIMMER, MR. AND MRS. C. P., New York City.
WINGER, MR. AND MRS. E. G., Cleveland, Ohio.
WINNE, A. L. I., Richmond, Va.
WINTER, MR. AND MRS. CARL, Cleveland, Ohio.
WIRTH, E. H., Detroit, Mich.
WOOD, MR. AND MRS. F. D., Morgantown, W. Va.
WRIGHT, FRED, Boston, Mass.

YOUNGKEN, HEBER W., Philadelphia, Pa.

ZEIGLER, MR. AND MRS. W. H., AND DAUGHTER, Charleston, S. C.
ZETTELMEYER, H., Cleveland, Ohio.
ZOELLER, E. V., Tarboro, N. C.

THE NATIONAL ASSOCIATION OF RETAIL DRUGGISTS CONVENES IN DETROIT SEPTEMBER 25–29.

The National Association of Retail Druggists will meet in Detroit, September 25–29; Hotel Statler has been selected for headquarters. The service rendered by this organization to the retail druggists throughout the country and, thereby, to the drug business generally, needs no word from us except that of a worthily bestowed commendation, which is gladly given.

Enlightened self-interest among druggists should persuade them to participate largely in the work which has been laid out by the executives for this annual convention. Here an opportunity is afforded them to serve themselves, their fellows, and pharmacy. There is much legislation to be discussed; many varied problems of the retail drug trade need the thoughtful consideration of the many so engaged.

The *N. A. R. D. Journal* has very clearly outlined the procedure relative to resolutions in conventions, in its recent issues. All associations have their particular field in which they are most active and influential, but the purpose of coördinating their work is growing. We take this opportunity of extending hopeful wishes for a most successful N. A. R. D. Convention.

OFFICERS OF STATE PHARMACEUTICAL ASSOCIATIONS 1922–1923.

(*Continued from p. 652, August 1922.*)

(Secretaries of associations are asked to make corrections and send in list of officers, and names of next convention city.)

FLORIDA.

President, J. J. Gerig, Ocala.

First Vice-President, J. D. Pearce, St. Petersburg.

Second Vice-President, T. C. Fletcher, Williston.

Third Vice-President, E. D. Mobley, Sanford.

Secretary-Treasurer, J. H. Haughton, Palatka.

INDIANA.

President, W. F. Werner, Indianapolis.

First Vice-President, Joseph W. Weis, Hammond.

Second Vice-President, Scott Kelly, Gaston.

Secretary, William A. Oren, Indianapolis.

The place of meeting for 1923—Culver.

KENTUCKY.

President, C. H. Brockmeyer, Fredonia.

First Vice-President, William J. Johnston, Mayfield.

Second Vice-President, W. H. Poynter, London.

Third Vice-President, L. C. Ellis, Glasgow.

Secretary, J. W. Gayle, Frankfort.

Treasurer, Vernon Driskell, Carrollton.

The place of meeting for 1923 is Louisville, June 19–21.

MONTANA.

President, J. N. Starbuck, Valier.

First Vice-President, A. N. Walton, Sheridan.

Second Vice-President, Charles Quist, Wisdom.

Third Vice-President, B. E. Lapeyre, Great Falls.

Secretary, J. A. Rieder, Boulder.

Treasurer, J. N. Talbot, Manhattan.

The place of meeting for 1923—Billings.

OHIO.

President, Harry G. Schmuelling, Cincinnati.

First Vice-President, W. L. Whelton, Akron.

Second Vice-President, Walter Zimmerman, Youngstown.

Secretary, Theodore D. Wetterstroem, Columbus.

Treasurer, L. W. Funk, Columbus.

The place of meeting for 1923 is Cedar Point.

OREGON.

President, A. C. Koeppen, Pendleton.

First Vice-President, George C. Sabin, Grants Pass.

Second Vice-President, L. L. Coleman, Portland.

Third Vice-President, J. S. Lamar, Tillamook.

Secretary, A. W. Allen, Portland.

Treasurer, John M. A. Laue, Jr., Portland.

A Tri-State Meeting is contemplated, participants—Oregon, Washington and Idaho.

VERMONT.

President, C. A. Shaw, Bellows Falls.

First Vice-President, Frank A. Gilbert, Brandon.

Second Vice-President, Frank G. Landry, St. Johnsbury.

Third Vice-President, E. W. Gilman, Marshfield.

Secretary-Treasurer, F. W. Churchill, Procter.

VIRGINIA.

President, H. E. Orchard, Lynchburg.

Vice-President, S. C. Brooks, Purcellville; L. R. Shadwell, Charlottesville; O. G. Grant, Abingdon; Roy Childrey, Richmond; G. M. Farrar, Jr., Clifton Forge; F. W. McIntosh, Farmville.

Secretary, A. L. I. Winne, Richmond.

Treasurer, Miss Maud Lambert, Roanoke.

Selection of place of meeting for 1923 was deferred; sentiment in favor of holding next meeting on the beach was manifested.

THE PHARMACIST AND THE LAW.

REPORT OF THE COMMITTEE ON THE STATUS OF PHARMACISTS IN THE GOVERNMENT SERVICE.*

BY E. FULLERTON COOK, CHAIRMAN.

At the New Orleans meeting of the A. Ph. A. this Committee was asked to take the necessary steps to secure the insertion, if possible, of the term "pharmacy" in the "Professional Service" section of the Reclassification Bill "To provide for the classification of civilian positions within the District of Columbia and in the field services," the Senate Bill being known as S. 13 and the House Bill, introduced by Congressman Lehlbach, being known as H. R. 8928.

At the joint hearing of this bill, on June 2, 1921, Dr. Jacob Diner was invited to appear and ably presented the cause of professional

* Submitted at the Cleveland meeting of the American Pharmaceutical Association, and approved.

EDITOR'S NOTE: Printing this report in this department serves a double purpose—it makes possible an earlier printing and it is also legislation in which all pharmacists are interested.

pharmacy, urging its inclusion with the other professions there named.

Congressman Lehlbach stated at that time that the term "pharmacology" which there appeared was intended to cover the profession of pharmacy but Dr. Diner urged that this would not be generally understood.

The unsatisfactory character of the situation was discussed at some length in New Orleans, resulting in its solution being placed in the hands of this Committee as has already been stated.

The Chairman communicated with Senator Sterling immediately upon his return from New Orleans and received a cordial letter assuring him that while hearings were closed, there was yet opportunity to secure amendments and that he would gladly consider any statement submitted to him on the subject.

The Bill being called up in the House on Monday, December 12th, the Chairman called upon Senator Sterling that morning, who assured him that he had no objection to the insertion of the word "pharmacy" in the "Professional Service" class and suggested that I at once see Congressman Lehlbach and secure his approval. Upon calling on Mr. Lehlbach it was found that he yet believed that the term "pharmacology" was a preferable word to indicate the highest type of professional pharmacy and that "pharmacy" meant an inferior training and standard.

It was apparently possible to convince him that this was not the opinion held by the vast majority of pharmacists and that the term "pharmacy" was a preferable word to use in the Bill and he agreed that if the change was introduced as an amendment, he would interpose no objection but would even explain the reason for the suggested change.

Congressman P. Darrow, of Pennsylvania, thereupon agreed to introduce the amendment when that paragraph was discussed and he was supplied with the necessary data.

Senator Sterling gave his approval to this entire plan and further consulted and received the approval of the technical advisor of the Committee from the Government Research Bureau, Mr. Louis Merriam.

The matter was also presented to the National Drug Trade Conference on the following day and the action approved, copies of the motion being sent to Senator Sterling and Congressman Darrow and Lehlbach.

Congressman Darrow introduced the amendment on December 13, 1921, and on the following day it was approved. An extended discussion preceded its final adoption, however, and in the debate, Congressman Lehlbach warmly defended the proposal, pointing out, understandingly, the possible needs of a pharmacist in Government positions where the proposed salary received in the classification was justified.

It was learned that the father of Congressman Lehlbach was a pharmacist of New York, associated with the College, and that the Congressman was well informed and interested in the welfare of pharmacists.

*It is recommended that a resolution expressing the appreciation of the members of this Association for their interest and support of this amendment, be passed and forwarded to Congressmen Darrow and Lehlbach and also to Senator Sterling.**

The Bill (H. R. 8928), early in August was yet before the joint Committees, with the amendment included, but it is not known when it may be brought up for final ratification.

A substitute bill has been introduced (S. 1079), known as the "Smoot Bill," but this lacks the support of powerful interests, and, should it be approved, would not be detrimental to the interests of pharmacists since no specific representatives of the professional group are named and pharmacists could qualify under the general classification.

PHARMACISTS IN THE ARMY.

The following communication from General Ireland, Surgeon-General of the Army, through his Executive Officer, Col. C. R. Reynolds, is self-explanatory.

"August 10, 1922.

"Dr. E. Fullerton Cook,
Hotel Statler,
Cleveland, Ohio.

"My dear Dr. Cook:

"The Surgeon General desires me to inform you of the present situation in regard to the appointment of pharmacists in the Medical Department of the Army, both Regular and Reserve.

"There are about 15 commissioned officers of the Medical Department who are pharmacists, these being commissioned in the Medical Administrative Corps in the grades of captain, 1st and 2nd lieutenants. There are in the Medical Administrative Reserve

* This was approved at the Cleveland meeting of the American Pharmaceutical Association.

Section, sixty-nine pharmacists already commissioned.

"On account of the reduction of the military establishment effected by the recent act of Congress, there are no vacancies in the Regular Medical Administrative Corps. On the contrary, it will be necessary to discharge nearly fifty percent of the present force of commissioned officers. Thereafter, as vacancies occur, they must be filled according to law from the enlisted force of the Regular Army, under certain requirements as to length of service. These appointments are open to pharmacists on an equal footing with their qualified candidates.

"The Officers' Reserve Corps in general is not limited to numbers and at the present time, applicants for all branches of the Medical Department sections of the Officers' Reserve Corps are desired. Of course, there will come a time when, under the war plans and tables of organization, there will not be positions for an unlimited number of officers, but that time is certainly far in the future. Accordingly, the Surgeon General would welcome applications for commissions in the Medical Administrative Reserve Section of qualified pharmacists who hold a recommendation from the American Pharmaceutical Association or from the deans of colleges of pharmacy. The plan decided upon in 1921 was that deans of the various schools recommended about three percent of the graduates of the schools for commissions. If it is desired that this plan be continued an application may be forwarded to the Surgeon General of the Army bearing the approval and recommendation of either the Association or the dean of the particular school concerned, or if desired, these officials may recommend individuals by name to the Surgeon General of the Army, whereupon correspondence will be entered into with them with a view to their appoint ment.

"I am forwarding you, under separate cover, six copies of the regulations for the Officers' Reserve Corps, which may be of service in clearing up certain matters in regard to the law and regulations as to eligibility.

"The Surgeon General wishes me to express his appreciation of the interest shown by your Association in the prosecution of the military policy in relation to the appointment of Reserve Officers.

Very sincerely,

C. R. REYNOLDS,

Executive Officer."

*It is recommended that the Association issue a call to registered pharmacists, urging them to respond to this invitation of the Surgeon General to obtain commissions as pharmacists, and this announcement should be widely published in the pharmaceutical press.**

PHARMACISTS IN THE U. S. NAVY.

The situation here remains practically the same as a year ago. The determination of Congress to reduce war expenses has made impracticable any new legislation which would increase costs. Happily, however, the present Surgeon General of the Navy, Admiral Stitt, is a graduate pharmacist and deeply and sympathetically interested in the development of the Hospital Corps, so that it is believed that proper recognition for pharmacists in the Navy is only a matter of time.

In the *Public Health Service* there have been several bills and regulations proposed during the past year, which gave concern to the pharmacists in the service but these were defeated.

We were advised by those who were familiar with the situation that this was not the time to start any movement for the betterment of the condition, rather retain, if possible, the present status for the time being.

The conditions here are not satisfactory, however, and must some time in the future be made more secure.

Attention has recently been called to the employment of pharmacists in the hospitals of the War Veterans' Bureau. An effort should be made at once to secure proper regulations in this new division of Government service, that only registered pharmacists can be employed. This Committee should undertake this urgent need at once.

HOUSE RESOLUTION NO. 258.[1]

WHEREAS competent medical and administrative authorities estimate that between 1,000,000 and 2,000,000 persons in the United States are victims of narcotic-drug addiction, and many of these unfortunates are ex-soldiers, ex-sailors, and ex-marines, members of the American Expeditionary Forces in the late World War, and the situation arising from the existence of so large a number of narcotic-drug users has created a menace to the physical and moral welfare of the citizens of the United States; and

* This recommendation was approved at the Cleveland meeting of the American Pharmaceutical Association.

[1] For action of American Pharmaceutical Association, see minutes of Cleveland meeting, this issue of the JOURNAL.

WHEREAS this condition of affairs has been complicated and aggravated by administration of existing narcotic laws in the various States and of the Harrison narcotic law by the Federal Government, and many of the rulings of the Federal Government and the provisions of State narcotic laws and sanitary codes of municipalities of the United States point to an organized conspiracy on the part of certain administrators and physicians to drive narcotic-drug addicts into established sanitaria purporting to treat and cure narcotic-drug addictions; and

WHEREAS this conspiracy has taken the course of rulings, provisions and regulations by the Federal Prohibition Commissioner at Washington, acting for the Internal Revenue Department of the Treasury Department in the matter of narcotic control, and by the passage of statutes by various State legislatures and the regulation of narcotic-drug distribution by various boards of health of various municipalities of the United States, which are contrary to existing medical bibliography, clinical and pathological research, and the best medical and lay experience in the handling of addict patients; and

WHEREAS the said medical bibliography, clinical, and pathological research, ignored in the administration of Federal, State, and municipal statutes, rules, and regulations, set forth conclusive scientific proof of the grave physical reactions in the body of an addict deprived of opium derivatives, resulting in acute discomfort, collapse and sometimes death; and pathological research shows changes in blood analyses in different stages of the withdrawal of narcotic drugs from addict patients, duplicating in every particular the phenomena evidenced in cases of acute infection and commonly recognized as disease symptoms; and medical records exist that serums extracted from the blood of animals in drug withdrawal have produced the complete symptomatology of drug withdrawal when administered to unaddicted animals of the same breed; and medical history, current and foreign, reports scores of cases of congenital addiction (that is, addiction at birth), and scores of deaths as the result of improper withdrawal of drugs; and

WHEREAS all of these known facts have been ignored in the administration of the Harrison narcotic law and in the administration of various State narcotic statutes and municipal sanitary codes and regulations, by the issuance of rules and regulations making it impossible for the medical profession to treat narcotic-drug addicts without fear of arrest, indictment, and conviction, or interference and persecution by the criminal authorities and

WHEREAS such administration of existing narcotics, Federal, State and municipal, has resulted in an increase in smuggling, peddling, and illegal distribution of opium and its derivatives and exaggeration of conditions in the underworld resulting from the existence of a criminal type of addicts; and such administration has resulted also in a virtual monopoly in the treatment of narcotic addict patients by privately owned and operated sanitaria promoting certain routine formulas and cures for narcotic addiction; and it is a recognized fact among competent clinicians that the physical phenomena presented by the addict patients do not lend themselves to treatment by any specific routine treatment; and

WHEREAS evasion and ignorance of these facts is rapidly increasing the criminal class of addicts, spreading addiction among the curious, encouraging smuggling, and driving hundreds of thousands of post operative and post war addicts of every walk of life to doubtful cures conducted by charlatans and fakers, and these intolerable conditions, menacing the youth of the nation and the physical and moral welfare of our citizens can be corrected only by an unbiased and fearless investigation of narcotic addiction conditions in the United States: Therefore be it

Resolved, That the Speaker appoint a select committee of 15, and shall include therein all members of the medical profession who are Members of the House, and that such committee be instructed to inquire into the subject of narcotic addiction in the United States, the method of handling these unfortunates, the medical addenda available regarding methods of treatment by private physicians, institutions, and sanitariums, the effectiveness of the present laws, rules and regulations to control smuggling, trafficking and abuse of narcotic drugs, and for the purpose of drafting legislation for the control of narcotic drug addiction.

For such purposes it shall have the power to send for persons, books, and papers, administer oaths, and is authorized to sit during the session or recesses of Congress, at Washington or any other place in the United States, and shall have the right to report at any time.

The expenses of the said investigation shall be paid out of the contingent fund of the House upon vouchers approved by the chairman of the said committee and to be immediately available.

BOOK NOTICES AND REVIEWS.

Botany—Developmental and Descriptive. By William Mansfield, A.M., Phar. D. Dean and Professor of Botany and Pharmacognosy, Union University, Albany College of Pharmacy, Albany, N. Y. Published by Lea & Febiger, Philadelphia and New York, 1922. 232 pages. Price, $2.50.

This handy little book written by a teacher with considerable experience is unique in more than one way. It is unique in the method of presentation, unique in the large number of excellent photographs used to illustrate a single point and unique in that it leaves nothing unexplained to a beginner in Botany. The latter point is especially valuable because too many authors of scientific textbooks for beginners seem to take it for granted that the student already knows considerable about the subject.

The introduction has some excellent generalities and the properties of protoplasm are described in a very clear way. Here also the plant cell is shown to differ from the animal cell in six ways.

Nearly half the book deals with the lower forms of plants and into these 96 pages is crowded a wealth of valuable information about these lowly forms which too few people know about.

In part I "special attention is given to the development and relationship of plants, to the modification of the reproductive process and organs, and to the development of new tissue or special modifications of old tissue in each succeeding higher group." In this part a single species is taken to represent each group of plants and by fully describing this species an excellent idea of the life processes and morphology of the entire group is obtained. Each plant is described under well-arranged headings, for instance, the discussion of the White Pine, representing the Gymnosperms, is arranged under the following paragraphs: Habitat, Morphology of the Sporophyte, Reproduction, Distribution of Pollen, Pollination, Development of the Male Gametophyte, Development of the Sperms, Fertilization, Seed Formation, and Seed Germination."

"In part II attention is given to descriptive Botany. This part contains all the facts necessary for a complete understanding of the study of roots, stems, buds, leaves, flowers, fruits and seeds." Each of these organs is described in a separate chapter and the different types, shapes, etc., are all illustrated by many photographs which are well reproduced.

The thorough manner in which plant organs are discussed may be illustrated by mentioning the following paragraphs found in the chapter on leaves: Origin, Parts, Forms of the Base, Forms of the Margin, Forms of the Apex, Outline of Simple Leaves, Compound Leaves, Forms of Venation, Leaf Arrangement, Duration of Leaves, Leaf-scars, Modifications, Texture of the Blade, Odor, Taste and Color.

In separate chapters roots, stems, flowers, fruits and seeds are treated in the same thorough manner. C. J. ZUFALL.

The following reviews have all been prepared and contributed by Otto Raubenheimer Ph.M.

Ernst Schmidt Anleitung Zur Qualitativen Analyse. Herausgegeben and bearbeitet von Dr. J. Gadamer, o. Prof. Pharm. Chem. and Direktor des Pharm-Chem Instituts der Univ. Marburg. 9. verbesserte Auflage 12 mo. pp. 112. $1.10. Berlin, Julius Springer, 1922.

Geh. Reigierungsrat, Prof. Dr. Ernst Schmidt, the father of pharmaceutical chemistry, died on July 5, 1921, but his works will remain an everlasting monument, better than bronze or marble. The book before us is one of his smaller works. It is in its ninth edition, which speaks well for its utility. Being a pharmacist himself, Schmidt knew exactly what the students in his laboratory should learn, *i. e.*, a good practical course. The present edition has been prepared by his assistant, now his successor. As a short qualitative analysis, especially suited for pharmacists, the book has no superior.

Proteins and the Theory of Colloidal Behavior. By Jacques Loeb, Member of the Rockefeller Institute for Medical Research, 12 mo. pp. 292. McGraw-Hill Book Co., New York, 1922.

Colloidal chemistry, the new science, is the dawn between physics and chemistry. It was the English chemist and Master of the Mints, Thomas Graham, F.R.S., who first studied the different behavior of chemical compounds when diffusing through animal membranes. The corner-stone of colloidal chemistry was laid by his lecture "Liquid Diffusion Applied to Analysis" before the Royal Society of London on June 13, 1861.

Colloid chemistry has been developed on the assumption that the ultimate unit in colloidal solutions is not the isolated molecule or ion, but an aggregate of molecules or ions, the so-called miscella of Naegeli. Since it seemed

improbable that such aggregates could combine in stoichiometrical proportions with acids, alkalies or salts, the conclusion was drawn that electrolytes were absorbed on the surface of colloidal particles according to a purely empirical formula, Freundlich's Adsorption Formula.

The author's investigations have led to the result that this last conclusion is based on a methodical error, as far as the proteins are concerned; namely, to the failure to measure the hydrogen ion concentration of the protein solutions, which happens to be one of the main variables. When the hydrogen ion concentrations are duly measured and considered, it is found that proteins combine with acids and alkalies according to the stoichiometrical laws of classical chemistry and that the chemistry of proteins does not differ from the chemistry of crystalloids.

The author, Jacques Loeb, is an authority on this subject, and he has produced a book which is of high interest and value.

George Thieme, Leipzig, the well-known publisher, kindly sent us the two following books for review:

Theoretische und Klinische Pharmakologie. Ein Lehrbuch fur Studierende und Ärzte von Franz Müller, Prof. Dr. rer. nat. et med. Lex. pp. 152.

The master work on this subject in German is Meyer-Gottlieb, the new edition of which the writer had occasion to review in *N. Y. Apotheker Zeitung*, Feb. 1922. The smaller book before us is based upon this master work. It contains 35 chapters which make up 4 parts; *i. e.*, Introduction, General, Pharmacology, Special Pharmacology and Conclusion. Of special interest to pharmacists, chemists and physicians is chapter 35—Theory of pharmacologic action. The book in its condensed form is a handy volume which we can heartily recommend to all interested.

Rezepttaschenbuch sparsamer Arzneiverordnungen für Privat- and Krankenkassenpraxis von Prof. Dr. Franz Müller and Oberapotheker Alfons Koffka, Berlin. 3 Anfl. pp. 56.

Owing to the high cost of drugs and chemicals in Germany, as well as the high salary of pharmacists, the authors have compiled a little formula book of prescriptions, which is reasonable in price. The book is also an excellent example of how physicians and pharmacists—one author is an M.D. and the other an Apotheker—can work hand in hand and benefit the patients not only as to quality but also as to price of medicines, an example which might also be followed in the United States.

Jahresbericht der Pharmazie. 55. Jahrgang 1920. Lex. pp. 440. Price $2.75. Göttingen, Vandenhoeck und Ruprecht 1922.

Just published is the well known Jahresbericht der Pharmazie for 1920, vol. 55, or Vol. 80 of the entire series, having been begun in 1841 under the title "Jahresbericht über die Fortschritte der Pharmazie und Pharmakologie." The history of this excellent work has been fully explained in the review of Vol. 54—in the JOURNAL, October 1921, pp. 819–820. The excellent management of this Jahresbericht, the oldest of all the Year Books in Pharmacy, has also been emphasized in the same review. Again I want to call attention to the bibliography which comprises one part of the work. The present volume, in 6 pages lists the books on pharmacy and allied sciences published during 1920. Such a bibliography might also be included in the A. PH. A. YEAR BOOK to its advantage and to the benefit of the members and readers. Will the Reporter kindly take notice? The list of Remedies, Specialties and Nostrums, including their composition, uses and manufacturers occupies 25 pages and is very complete including f.i. such articles from the United States, as Usoline and Creofos. The Reporter or Editor of the Jahresbericht is Dr. Heinrich Beckurts, professor at the Technical High School in Braunschweig. He is assisted by Apotheker F. Dietze in Bad Harzburg.

The literature-pharmaceutical, chemical and frequently medical—of the entire world has been abstracted and classified. Among the American Journals we find J. A. PH. A., *A. J. Ph., N. Y. Apoth. Ztg. Midl. Dr. and Ph. Rev., J. Am. Ch. Soc., J. Ind. and Eng. Ch., Chem. and Met. Eng., J. Biol. Chem., J. Ph. and Exp. Ther., J. A. M. A., J. Agr. Res. and J. Franklin Inst.* In the Authors' Index we find Americans well known to all of us, as: H. V. Arny, G. M. Beringer, G. D. Beal, L. P. Brown, A. S. Cushman, Dow Chemical Co., G. E. Ewe, Clemens Kleber, Charles LaWall, D. I. Macht, F. X. Moerk, F. W. Nitardy, Hugo Schaefer, W. L. Scoville, D. Van Slyke, J. K. Thum and S. Waldbott.

We wish the "Jahresbericht" continued success and hope that it will become better known in the United States among teachers, manufacturers, chemists, and pharmacists. The library of every College of Pharmacy or similar educational institution should contain a set of these Jahresberichte der Pharmazie. No research worker and no scientific pharmacist can do without them!